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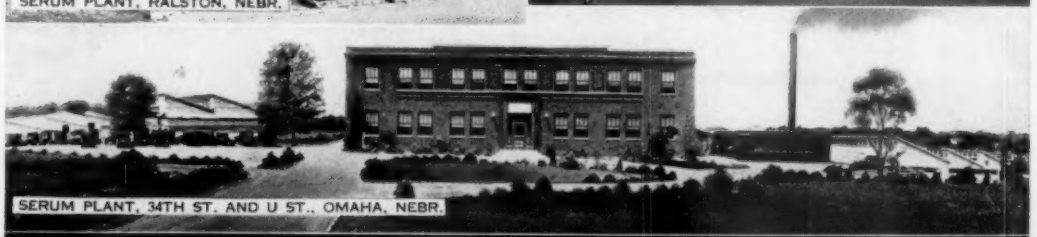

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VOL. C JUNE 1942 NO. 783

A Further Note on the Incidence of Trichomonas Fetus in Slaughtered Cattle from a Wisconsin Abattoir

B. B. MORGAN, Ph.D., and W. WISNICKY, D.V.M.
Madison, Wis.

IN A PREVIOUS PAPER the senior author reported[1] the presence of *Trichomonas fetus* in 560 dairy cows obtained from a local packing plant. This paper is a further report on the incidence of *T. fetus* in a total of 1,577 bovine uteri obtained from the same source. Of the 1,577 cows examined, 997 were pregnant and 580 nonpregnant. In other words, a cross section of cows sold at this packing plant showed 63 per cent of the cows pregnant and 37 per cent nonpregnant. The pregnant cows were grouped as to number of months pregnant as follows: 20 up to 1 month, 49 between 1 and 2 months, 113 between 2 and 3 months, 142 between 3 and 4 months, 143 between 4 and 5 months, 129 between 5 and 6 months, 130 between 6 and 7 months, 114 between 7 and 8 months, and 155 between 8 and 9 months. The ages of the fetuses of course, are approximate. Two uteri contained anomalies or monsters. Of the pregnant group only 2 animals were positive for trichomonads. The amniotic fluid of an apparently normal fetus, approximately 7 months of age, and a partially macerated fetus, approximately 3 months of age, were teeming with *T. fetus*.

The nonpregnant group of 580 uteri were distributed as follows: 463 involuted uteri, 100 pyometras, 11 retained placentas, and 6 recent parturitions. In this group, 13 positive cases of trichomoniasis were taken from pyometras. The pyometra fluids of the positive cases varied from clear, transparent mucus to viscid mucus containing whitish to yellowish flakes of pus and grayish to orange liquid containing lumps of pus which resembled the curd of sour milk. In some cases only small flocculi of pus were found scattered throughout the uteri with little or no fluid. On examination, these flocculi were teeming with *T. fetus*.

Approximately 1 per cent (actually 0.95 per cent) of the total slaughtered cows examined were positive for trichomonads. Roughly, 6.3 per cent of the total cows examined were suffering from pyometra. The incidence of *T. fetus* from the 100 uteri with pyometra was 13 per cent.

Amniotic, fluid, allantoic fluid, swabs from the mouth of each fetus, and exudate from uteri were inoculated into culture media. The material was examined at the

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Department of Veterinary Science, University of Wisconsin.

[1]Morgan, B. B.: The incidence of *Trichomonas foetus* in Wisconsin cattle. J. Parasitol., Suppl., xxvii (1941), p. 16.

laboratory, then incubated at 30 C. for 12 to 18 hours and examined for the second time. After this examination the cultures were incubated at 37 C. for 12 to 18 hours and examined again for the last time. The culture material used was the egg slant layered with saline, according to Avery and Garlick,[2] or layered with Ringer's or Locke solution. Saline and serum also were used. Occasionally, the all-autoclaved medium of Schneider (unpublished thesis)[3] was used.

From the 15 cases of bovine trichomoniasis encountered at the local abattoir thus far, 4 cases have been isolated apparently bacteria-free by the migration technique of Glaser and Coria,[4] Petri-dish migration of Andrews and Lyford[5] and a modification of the capillary migration of Stone and Reynolds.[6] Several strains of *T. fetus* contaminated with an atypical strain of *Corynebacterium renalis* are also maintained in this laboratory. These bacteria apparently grow in close association with *T. fetus*, as the flagellates multiply more rapidly in Schneider's citrate medium in its presence than in bacteria-free cultures.

In the only other report on slaughterhouse incidence of *T. fetus* in cows from the United States, McNutt, Blohm, and Barger[7] in Iowa reported 4 cows infected, from a total of 641 cows and heifers examined. Of the total number of cattle examined, this is approximately 0.6 per cent infected, in contrast to our findings of about 0.95 per cent.

The examination of 211 bulls from the local packing plant did not reveal any trichomonad infections. This is in agreement with the findings of Andrews and Miller,[8] who examined 100 bulls at Baltimore, Maryland, abattoirs and did not find *T. fetus* in any of them.

The authors wish to acknowledge the help of Drs. G. Raps, C. K. Whitehair, R. Spencer and C. A. Herrick who aided materially in collecting data for this work.

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Hog Cholera Doubled in Four Years, Farmers Told

Messages telling farmers the importance of having a veterinarian vaccinate their hogs against cholera are being printed in the farm magazines of ten major hog-producing states this spring by the Associated Serum Producers.

The advertisements started in April and will continue through June. They point out the fact that cholera outbreaks have virtually doubled in the past four years, and that this year's prices make it sound economy to have this spring's pig crop protected. The importance of having the vaccinating done only by a veterinarian is stressed in each advertisement.

The producers have also underwritten a similar campaign on the radio, covering twenty leading stations in ten states. Radio warnings concerning the danger of cholera are being featured on farm programs and farm news broadcasts. These radio messages, also, emphasize that vaccinating against cholera should be done by a veterinarian if reliable, lasting protection is to be obtained.

A series of illustrated articles on livestock health subjects has also been released this spring to approximately 1,200 local newspapers through the Associated Serum Producers' educational bureau, the American Foundation for Animal Health. The Foundation is likewise continuing its regular news and radio releases throughout the year, stressing the importance of modern veterinary service.

Vitamin E can be distilled from soy beans, but much of the total tocopherols remain in the undistilled residue.

Studies on Ketosis in Dairy Cattle. IV. The Effect of Glucos Therapy and Pasture Feeding in Cases of Clinical Ketosis

J. C. SHAW, M.S., Ph.D., ROSS C. POWELL, JR., M.S., and G. C. WHITE, M.A.
Storrs, Connecticut

Carbohydrate therapy has become generally recognized as the most efficacious treatment for ketosis in cattle. The literature in reference to this subject has been amply reviewed by Sampson and Hayden[1]; Duncan, Huffman, and Tobin[2]; Sampson and Boley[3]; Knodt, Shaw, and White[4]; and others.

In a study of the beneficial effects of various treatments of ketosis, an attempt was made to compare the results with those obtained from glucose. A review of the literature in hand revealed that there were no precise quantitative data available for making such a comparison, particularly not in relation to the rapidity of the antiketogenic action of glucose, the duration of the effect and the response to various levels of the glucose intake.

From the data studied, a few typical cases selected for presentation are believed to contribute to a better understanding of ketosis in cattle and more particularly of the antiketogenic effect of glucose in the treatment of that condition.

METHODS

Blood and urinary acetone bodies were determined by the method of Barnes and Wick,[5] the β-hydroxybutyric acid being obtained by difference after determining total acetone bodies and the acetone and acetoacetic acid fraction. The method used for blood sugar was that of Shaffer and Somogyi,[6] the blood filtrates being prepared by the Somogyi[7] method. Lactic acid was determined by the method of Miller and Muntz[8] as modified by Koenemann[9] and Barker and Summerson.[10] A modification of Allen's method was used for the determination of blood fat.[11]

RESULTS

Data are presented on four cows which were diagnosed as having uncomplicated ketosis.

From the Department of Dairy Industry, Storrs Agricultural Experiment Station. This project is financed in part by a grant from the Chas. M. Cox Co.

Cow P-1 (figure 1) showed all of the clinical symptoms of severe ketosis five days after parturition and had not been treated prior to the first day of observation. As was true of most of the severe cases studied, this animal refused all grain, molasses, and glucose, eating only a little timothy hay from time to time. An intravenous injection of 250 Gm. of glucose produced a substantial decline in blood acetone bodies within two hours. The effect did not last. The blood acetone bodies showed a considerable rise within the next two hours. The acetone bodies, however, did not return to the previous high level. The same quantity of glucose, injected 36 hours after the first injection, produced a marked decline in blood acetone bodies within 90 minutes. Since samples were not taken until 24 hours later it is not known whether there was another increase in acetone bodies following the initial decline. During the two days following the second injection there was a gradual decline in the blood acetone bodies. Chloral hydrate, administered orally during this period, may have aided in preventing the recurrence of the more severe condition but it did not have any specific effect in decreasing the blood acetone bodies. The blood glucose did exhibit a significant rise during this two-day period. The appetite of the animal did not improve until after the next dose of glucose, when 330 Gm. were injected intravenously and 6 lb. of glucose were pumped into the rumen with a stomach tube. This was followed by a decline in blood acetone bodies in 4 hours from 12.1 to 6.0 mg. per cent, a further decline in 11 hours to 3.1 mg. per cent, and a still further decline in 36 hours to 2.5 mg. per cent. Three pounds of Karo syrup per day were fed during the next two weeks by pouring it on the hay. There was no recurrence of ketosis.

The data presented in figure 2 on cow

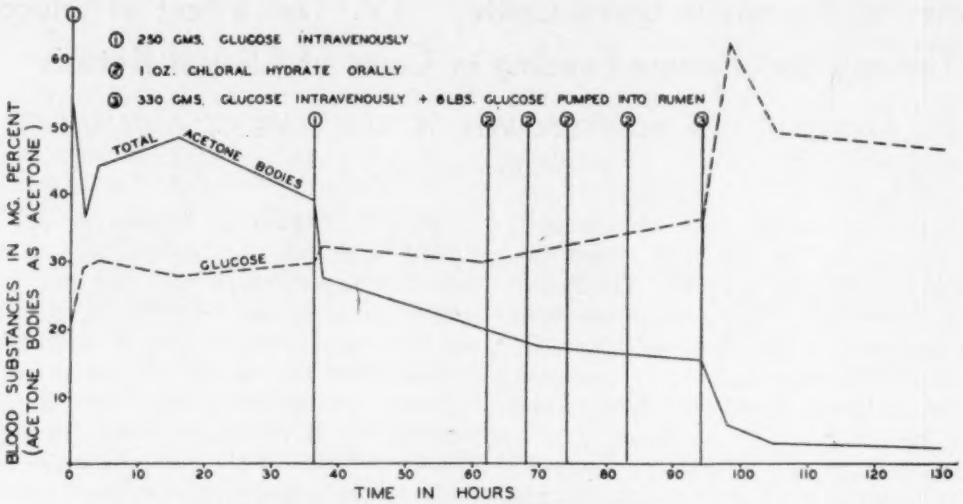
① 250 GMS. GLUCOSE INTRAVENOUSLY
② 1 OZ. CHLORAL HYDRATE ORALLY
③ 330 GMS. GLUCOSE INTRAVENOUSLY + 6 LBS. GLUCOSE PUMPED INTO RUMEN
TOTAL ACETONE BODIES
GLUCOSE
BLOOD SUBSTANCES IN MG. PERCENT (ACETONE BODIES AS ACETONE)
TIME IN HOURS

FIG. 1 CARBOHYDRATE AND CHLORAL HYDRATE THERAPY IN KETOSIS (COW P-1)

W-1 is typical of a number of cases in which the response to glucose was temporary even with large dosage. The onset of ketosis occurred about two weeks after parturition, the more severe state being preceded by a decline in appetite and in milk production. The day before the observation began the cow was completely off feed and was weak and unstable. At this time 500 cc. of a 22 per cent solution of calcium gluconate were injected without any apparent beneficial effect. Blood samples were taken on the following day for analysis, following which 6 lb. of glucose were pumped into the rumen. There was a marked decline in blood acetone bodies but this was followed by a rise on the following day. An additional 6 lb. of glucose were pumped into the rumen and this time there was little immediate response, but in the following few days there was a marked decrease in blood glucose accompanied by an equally marked increase in blood acetone bodies. At the end of the eighth day of observation, the animal was again extremely unstable. At this time, another 6 lb. of glucose were pumped into the rumen. The blood acetone bodies decreased signifi-

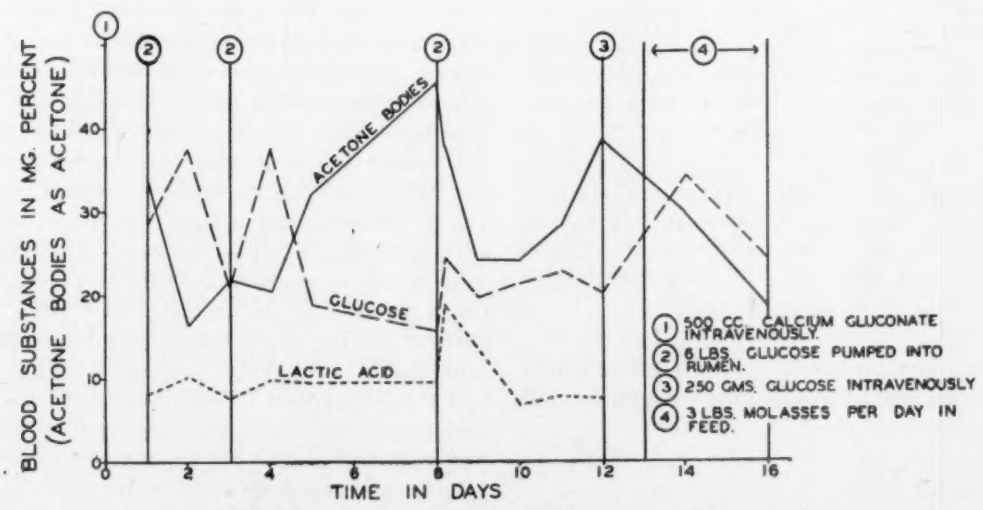
ACETONE BODIES
GLUCOSE
LACTIC ACID
① 500 CC. CALCIUM GLUCONATE INTRAVENOUSLY.
② 6 LBS. GLUCOSE PUMPED INTO RUMEN.
③ 250 GMS. GLUCOSE INTRAVENOUSLY
④ 3 LBS. MOLASSES PER DAY IN FEED.
BLOOD SUBSTANCES IN MG. PERCENT (ACETONE BODIES AS ACETONE)
TIME IN DAYS

FIG. 2. CARBOHYDRATE THERAPY IN KETOSIS (COW W-1)

cantly for two days and then began to increase once more. Throughout this entire period the cow refused to eat except for a mixed grass hay which was eaten somewhat sparingly. This emphasizes the importance of bringing the animal back on feed to promote rapid recovery as rapidly as possible. It appears that the repeated administration of large quantities of glucose may have had an adverse effect on the appetite.

At the end of the twelfth day 250 Gm. of glucose were injected intravenously and 3 lb. of molasses were fed daily for several days by pouring it on the hay. The appetite finally improved and recovery took place without a further relapse. Circumstances made it impossible to follow the blood picture during this final phase.

It will be observed in figure 2 that the blood glucose was maintained at or below 24 mg. per cent for a period of seven days; whereas blood lactic acid remained at a rather high normal throughout this period, increasing temporarily to a very high level following the administration of glucose by stomach tube on the eighth day.

One animal (Cow N-34, figure 3) developed a chronic ketosis, permitting the study to be extended over considerable time, during which the animal was purposely allowed to return to a state of ketosis from time to time by not administering glucose. Although the blood picture indicated a severe condition of ketosis at various times, this animal was never completely off feed and, in fact, with the exception of the first day of observation, had a good appetite. The blood and urinary acetone bodies were reduced to a low level three different times by giving glucose: twice by pumping large quantities of glucose into the rumen and once by feeding 2.5 lb. of glucose daily for 5 days. The intravenous injection of glucose produced only a temporary antiketogenic effect. There appears to be little doubt that the blood and urinary acetone bodies could have been maintained at a normal level had glucose feeding been continued. After the first month glucose was discontinued. A chronic condition of ketosis developed and lasted more than two months during which the cow appeared perfectly normal clinically, but maintained a high level of blood and urinary acetone bodies and a relatively low level of blood glucose.

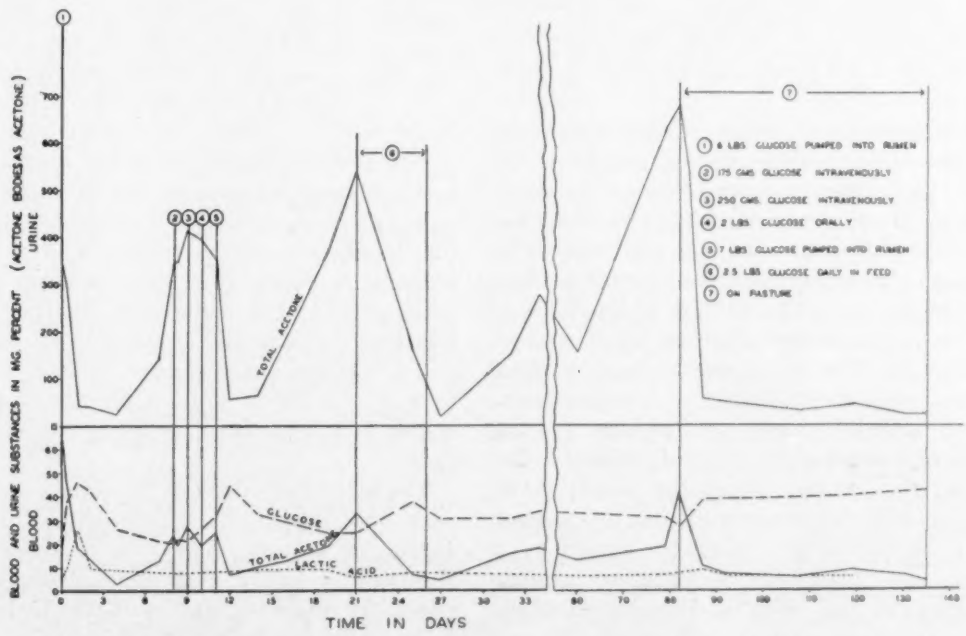
BLOOD AND URINE SUBSTANCES IN MG. PERCENT (ACETONE BODIES AS ACETONE)
URINE
BLOOD
TOTAL ACETONE
GLUCOSE
TOTAL ACETONE
LACTIC ACID
TIME IN DAYS
① 6 LBS. GLUCOSE PUMPED INTO RUMEN
② 175 GMS. GLUCOSE INTRAVENOUSLY
③ 250 GMS. GLUCOSE INTRAVENOUSLY
④ 2 LBS. GLUCOSE ORALLY
⑤ 7 LBS. GLUCOSE PUMPED INTO RUMEN
⑥ 2.5 LBS. GLUCOSE DAILY IN FEED
⑦ ON PASTURE

FIG. 3 CARBOHYDRATE THERAPY AND PASTURE FEEDING IN KETOSIS (COW N-34)

Blood lactic acid remained at a rather high level throughout the entire period.

At the end of the seventy-ninth day the blood and urinary acetone bodies suddenly increased and the blood glucose decreased. The concentration of the two blood substances changed simultaneously, and the urinary acetone bodies increased almost to the maximum just before the large increase in the blood acetone bodies occurred. At this time, the cow was placed on early spring blue grass pasture. Within five days the blood glucose returned almost to normal while the blood and urinary acetone bodies decreased from 41.3 and 677.8 mg. per cent to 11.0 and 57.0 mg. per cent, respectively. The blood and urinary acetone bodies remained somewhat above normal for a period of 30 days of pasture feeding before dropping to normal values. The blood glucose level increased slowly from 39.2 to 43.1 mg. per cent during this period.

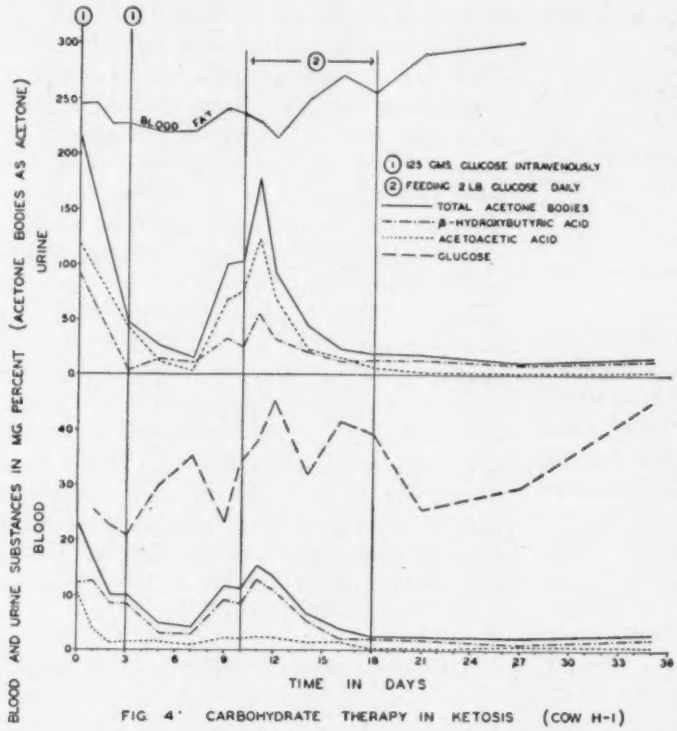

FIG. 4.—CARBOHYDRATE THERAPY IN KETOSIS (COW H-1)

In another case (cow H-1, figure 4) a study was made of the effect of glucose therapy on the blood and urinary acetone body fractions, acetone and acetoacetic acid and β-hydroxybutyric acid. Blood fat studies were also made. The case was one of mild ketosis clinically. The cow was a little weak from the fifth to the seventh day following parturition. At that time, 500 cc. of calcium gluconate were injected intravenously. One week later the observations presented in figure 4 were started. On the first and third days of these observations, 125 Gm. of glucose were injected intravenously and from the tenth to the eighteenth day 2 lb. of glucose were fed daily. The cow was never badly off feed at any time and ate the glucose with relish.

Following the first injection of glucose, the blood acetone and acetoacetic acid fraction decreased rapidly and remained at a fairly low level while β-hydroxybutyric acid decreased at a slower rate. The increase in blood acetone bodies with the recurrence of ketosis was due primarily to β-hydroxybutyric acid, as was the subsequent decrease of blood acetone bodies which followed the feeding of glucose. The urinary acetone bodies, however, presented a somewhat different picture, the initial decline in total acetone bodies being due to both fractions. With the recurrence of ketosis the increase and subsequent decrease in urinary acetone bodies was due primarily to the acetone and acetoacetic acid fractions. Since the blood and urine fractions were not followed as closely in studies on other cows with ketosis, it is not known whether this relationship generally prevailed. It will be noted that the blood glucose did not return to a normal level until after the acetone bodies had been at a low level for several days.

The blood fat values in this study did not bear any apparent relationship to the degree of ketosis. The rise in blood fat observed in figure 4 is undoubtedly associated for the most part with the lactation cycle. Allen[12] has shown in his very comprehensive study of blood in cattle that

there is a significant rise in blood fat during the first few months following parturition.

DISCUSSION

Several points arise immediately in a consideration of the use of glucose or similar carbohydrate in the treatment of ketosis in cattle. It is apparent that in order to promote a rapid and permanent recovery from severe ketosis with glucose, it must be administered at frequent intervals and in substantial quantities over a period of time. Although pumping large quantities of glucose into the rumen produces a marked and immediate antiketogenic effect, such treatment is often inadequate because of the adverse effect it has upon the appetite of the animal. Adding glucose or its equivalent to the feed would appear to be the most logical method of carbohydrate therapy. Unfortunately, however, the appetite is usually impaired to such an extent in the more severe cases that it is impossible to administer glucose in this manner. It is sometimes possible to induce the animal to eat the glucose mixed with grain following an injection of 250 Gm. or more of glucose intravenously. More often, however, even though the animal may improve temporarily it will refuse to eat sugar in any form. Intravenous injections followed by drenching 3 to 4 lb. of glucose daily has proven to be an effective method of carbohydrate therapy in such cases. Usually, the drench is given in several portions during each day until the appetite improves sufficiently to make it possible to include glucose, or its equivalent, in the feed.

Based upon the assumption that the causative factor in ketosis is a lack of readily available carbohydrate, the feeding of glucose or molasses prior to parturition is frequently recommended as a preventive. Two cases of ketosis of considerable severity have been observed during the past year even though one animal had received 2 lb. of cane molasses daily for two weeks prior to parturition and the other had received 1.5 lb. of Karo daily for 4 weeks prior to parturition. This indicates that something more fundamental than a deficiency of soluble carbohydrate may be involved in the onset of ketosis in cattle.

Blood glucose values were sometimes observed to decrease before an increase in acetone bodies occurred and often failed to rise to normal until some time after the acetone bodies had returned to normal. However, in general, there was a rather close reciprocal relation between the blood glucose and the blood acetone bodies.

The fact that ketosis is most prevalent during late winter stall feeding conditions and that affected cows respond so well to glucose therapy and pasture indicates that the causative factor or factors may be nutritional. A number of animals have had a rather dramatic recovery after having been placed on pasture, as in the case of animal N-34. However, four cases of ketosis have been observed in cows on pasture which tend to contradict this theory to some extent. The antiketogenic effect of certain pasture grasses may be due in part to their soluble carbohydrate content. Thiamin and possibly other components of the vitamin B complex may also be involved, especially in view of the fact that the blood lactic acid often remains at a relatively high normal level in ketosis even with severe hypoglycemia. It is of considerable interest that Boddie[13] and Hodgson, Riddell, and Hughes[14] observed an increase in the blood sugar level of cows on pasture.

The rise in the lactic acid of blood, which often follows the pumping of glucose into the rumen of cows with ketosis, has also been observed following similar treatment of cows which had been fasted for several days. No attempt has been made to determine whether a similar conversion of glucose to lactic acid could be detected following the pumping of glucose into the rumen of normal cows. We have observed that the cow with ketosis is more subject to glucose shock following glucose therapy than either the normal or fasted cow.

In the recurrence of ketosis in animal H-1, the rise in blood acetone bodies was limited primarily to β-hydroxybutyric acid. As it is generally assumed from the work of Jowett and Quastel[15] that acetoacetic

acid is the first acetone body to be formed with the occurrence of ketosis, it was expected that the major portion of the blood acetone bodies would be acetoacetic acid. It is quite possible, of course, that acetoacetic acid was formed first and then rapidly converted to β-hydroxybutyric acid. The predominance of acetoacetic acid in the urine during this same period is more difficult to explain. It could be accounted for on the basis of a change in the renal threshold of this substance or by the conversion of β-hydroxybutyric acid to acetoacetic acid by the kidney. The latter, however, is not indicated, as it has been demonstrated by Snapper and Grünbaum[16] that the kidney effects a reduction of acetoacetic acid to β-hydroxybutyric acid.

ACKNOWLEDGMENTS

The authors wish to express their appreciation to Drs. F. F. Bushnell, E. R. Dimock, A. T. Gilyard, and A. N. Glassman for their coöperation in this work.

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That Troublesome Rumen

The ruminant stands apart from the monogastric animal and the human being from the standpoint of digestion and nutrition. Its rumen has to manufacture—synthesize—essential amino acids from simple compounds of nitrogen, and must do so with rhythmic precision to maintain growth and gains and health.

In digestion, the rumen is more than a mere receptacle for large volumes of forage. It is a reservoir where herbaceous material must be fermented by the action of a specialized bacterial flora. On that score, the rumen is like the vat of the brewer where the contents must undergo strictly controlled chemical changes to be processed into a useful finished product. Elementary as these facts may seem, there remains much to be learned about the functions of this troublesome paunch in the production of ruminants, and in the practice of medicine among them.

Bacteria of the digestive tract, which obviously take residence there with the first swallow of the mother's milk, are both beneficial and harmful. Their rôle in health is just coming to light.

There are about a million more dairy cows in the United States than a year ago.

Frozen and Dried Eggs

V. T. JOHNSON
Chicago, Illinois

THE HISTORY of the frozen and dried egg industry is extremely interesting because it is a comparatively new business and has grown in mushroom fashion. About thirty years ago, the H. J. Keith Company first started freezing eggs in Boston, although I believe there was one company in the Middlewest that did some experimental work in the freezing of eggs prior to this time. China started to freeze and dry eggs in a larger way than we did in this country, and for a considerable time after 1910 we imported large quantities of dried and frozen eggs from China, largely due to the cost in comparison to American products and also because of the advancement the Chinese had made in this industry.

Up to about 1925, practically all of the dried eggs used in this country came from China where there are few large egg drying centers. Most of the drying is done in very small plants of which there are hundreds in the interior. There are no large flocks of hens in China. Practically every family in the small communities has a flock of chickens comparable to the size of the family. The Chinese farmer receives from 2¢ to 3¢ a dozen for his eggs, which is a high price in comparison to the low wages workers receive in the communities where eggs are the major source of income. Generally, the eggs produced in China are smaller than the American product. It takes about fifteen eggs to make 1 lb. liquid in comparison to ten eggs in this country. In China, they can not afford to give a balanced ration to the hens; they have to scratch for their feed, and as a consequence Chinese eggs have more strength and are darker in color than ours.

After the dried eggs from the hundreds of plants in the interior of China are packed, they are concentrated in various centers such as Shanghai, Hankow, Tientsen, and other seaport cities, where they are checked for quality and color. They are then offered under brand names, such as, Chicken Brand, Bat Brand, Wilson Brand and many others. The last couple of years, all of the Chinese dried eggs have been offered through Japanese brokers, with the result that American purchasers could not depend on the color or quality, even though the product was branded. The importation of dried and frozen eggs has been quite a factor on this market, and various increasing tariffs have been put on Chinese products to make the price somewhat comparable with American products. The duty on Chinese products is 10¢ a dozen for shell eggs, 11¢ a lb. on frozen eggs and 27¢ a lb. on dried eggs. Even with these duties, in a great many years the Chinese products could still come into this country and undersell our American market.

In 1910, there were about 600,000 lb. of frozen eggs packed. Ten years later there were 16 million lb. produced and in 1930, 71 million lb. were packed. In the year 1941, exclusive of the 66 million lb. purchased by "Uncle Sam" for lend-lease purposes, this country used about 300 million lb. of frozen eggs.

In the early days of frozen egg production, the product put into cans was largely eggs that were strictly of undergrade quality which could not be sold in shell form. They were packed from checks, dirties, mud-balls, leakers, bloodies and anything that could be salvaged for edible purposes. It is an entirely different story now, because there are over 300 breakers in this country and the majority of them are packing eggs under extremely sanitary methods. There are egg breaking plants in practically every state in the Union today. However, the large majority are located in

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the Middlewest from Minnesota to Texas.

As eggs are received at the egg-breaking plants, each case is weighed and records kept. Then, they are put into coolers, each lot being marked so they will be broken in chronological order. When the eggs come from the coolers, they are candled before going to the breakers. The eggs are kept in the coolers at 34 F. and checked for internal temperature so they will be as close to 50 F. as possible when they get to the breaker. We have found this temperature ideal to curtail bacterial development and obtain the largest yield. The eggs are placed in buckets by the candlers and each girl at a breaking table has shell eggs, egg meat buckets, knives for breaking the eggs, egg meat cups, spoons and breaking trays. The operator picks up three eggs in her left hand, then takes one egg from her left hand, breaking the shell across the stationery knife. The two halves of the shell are flipped into a cup. She puts the meat of four eggs into one cup. After this operation, she smells the egg meat and also looks at the eggs to see that they are good quality. All egg breakers are tested for sense of smell and eye sight before they are employed, as there is no known method for mechanically breaking eggs and determining their quality as far as color is concerned. It is impossible in candling to detect whether the eggs have a grass color, a slight musty odor, a slight fishy odor, coal oil odor, fruity odor or an odor that may come from the feed of the hen. When the bucket is about half full of egg meat, the product is immediately taken to a pump and filtered twice, the second filtering going through a strainer of 1/32-inch mesh. From the strainer the product is put into churns, and, according to the type of eggs, whether whole eggs, egg whites, sugared or plain yolk, they are given a definite stop-watch churning so that the product is smooth throughout. They are pulled from the churn into washed 30-lb. containers and immediately taken to the freezer where it takes about 72 hours at subzero temperature to thoroughly freeze them.

According to the government standards, "whole eggs" are the natural egg meat as it is taken from the shell, "egg whites" are the natural separated egg white as taken from the shell, "sugared yolk" must be 43 per cent solids before 10 per cent sugar is added, "plain yolk" must be 43 per cent solids. However, the majority of breakers pack 45 per cent solids "plain yolk," as they are largely used by the mayonnaise and noodle manufacturers. When the eggs are put into containers and hauled into the freezers, we prefer to pile the cans pyramid style, if space permits, as this gives more air space around each can and they freeze more quickly. Eggs freeze from the outside, into the center of the can, and after they are frozen there is a definite peak of egg meat on the top of the container. The faster the eggs are frozen, the better the product because the ice crystals are smaller and after defrosting there is less separation of liquids and solids. The majority of egg breakers take every precaution to see that egg breaking rooms are as clean as kitchens. All equipment, including tables, floors, walls, is washed every day and equipment is cleaned many times during the day to hold down bacterial growth. Eggs are as perishable as any product put into cans and bacterial development is fast, unless the product is handled rapidly and carefully after defrosting. We made tests, over a period of several months, on various methods of defrosting eggs and found that by a special agitator constructed to give the can a ¼ turn while immersed in water at 60 F., thawing took place in about nine hours with a 40 per cent increase of bacteria. Thawing under running water at 60 F. took about 15 hours for the eggs to defrost, with a bacteria growth of 225 per cent. By thawing under normal bakery temperature of about 80 F., it took approximately 25 hours for defrosting and bacterial growth increased 990 per cent; thawing at about 70 F. took approximately 36 hours for defrosting and bacterial growth increased 750 per cent; thawing at ice box temperatures of about 45 F. took approximately 63 hours to defrost the eggs and bacterial growth increased 225 per cent. Practically all good breakers today check for bacteria, *Escherichia coli* and various other tests are given

to put out a product of the highest quality. If the product is not handled correctly when the user receives it, a great deal of the good work that the breaker has done to put fine quality into the can has been undone.

"Whole eggs" contain about 13 per cent proteins, 12½ per cent fats and about 74 per cent moisture; "plain egg yolks" contain about 12 per cent proteins and about 88 per cent moisture; "plain egg yolk" contain about 16 per cent proteins, 29 per cent fats and about 55 per cent moisture. With the large percentage of moisture, naturally bacterial development is rapid. The fats, particularly, are a perfect medium for bacterial growth. All good plants use code numbers on every can packed so that if any trouble arises, the customer can check the day of the month and the year the eggs were packed at the plant. Eggs can be held at subzero temperatures for many years. I had occasion to check some frozen eggs 16 years old that were in excellent condition, with the exception of having a slight "eggy" odor. In plant practice work, they did a very good job.

The larger users of frozen eggs are the bakers. They use about 65 per cent of the total production. The remaining 35 per cent is used by the mayonnaise manufacturers, noodle manufacturers, candy people, sausage manufacturers, and, in many instances, state institutions. The CCC camps have purchased frozen eggs for scrambling purposes.

There are many types of frozen eggs packed by the industry, namely, "whole eggs," which are eggs as they come from the shell; "egg whites," which are the entire white clipped as closely as possible from the eggs when they are broken; "sugared yolks," which are the yolks from eggs, containing 10 per cent sugar; "high color yolks," which are eggs separated for yolk color and largely used by the noodle manufacturers; "mixed eggs," which are the same as "whole eggs"; "fresh broken stock," which are eggs broken the same day they are delivered to the baker; "salted yolks," a patented product containing 7 per cent to 10 per cent salt, used entirely by the mayonnaise people; "glycerine eggs," also a patented product containing 3 per cent to 7 per cent glycerine—the glycerine is added for smoothness and to enhance the keeping qualities of the baked goods; "nulomoline eggs," which have invert sugar added to give smoothness and better keeping qualities to the finished product. Also, some manufacturers require "Kosher eggs," which are packed under the Jewish ritual. The specification of the Kosher egg is that the plant must be sanitary and that only hen eggs be used—no duck eggs, mud-balls, leakers or eggs of questionable quality to be included. Also, there are certain special brand types of eggs known as Voltex, Super-Tex, Kirtex, etc.

All of the processes that have been commercially successful in the manufacture of dried egg products are based on the principle of removing the water by evaporation in the presence of heat. The methods which have been used can be classified as spray-drying, pan-drying, drum-drying, belt-drying, vacuum-drying systems. Many of the methods are patented processes, but, the principles of all are the same. The spray-drying method has been used for a number of years to remove moisture from all types of products. There are several companies manufacturing spray driers that do excellent jobs.

The principle of spray drying is that of reducing the liquid egg product to an exceedingly fine spray, or mist, in the presence of heated air. The liquid egg is forced by powerful pumps through fine nozzles under pressure of 1,500 to 3,000 lb. per sq. inch into a high ceilinged conical chamber, which is kept at a temperature of about 160 to 220 F. The air in the drying chamber is brought in through a filter which removes dust and impurities and is circulated rapidly by a blower, thus making a cyclonic current of hot air. This heated air mixing with the atomized liquid egg diffused through the chamber results in an almost instantaneous drying of the liquid product as it is sprayed from the nozzle or nozzles, the dried product falling down the steeply sloping sides of the chamber in the form of a flour-like powder. In many instances, the air which enters at the side of the top of the drying chamber escapes through the center of the top into a second chamber or

dust collector. Loss of egg dust with the escaping airs is thus entirely prevented, as it is collected at the bottom of this auxiliary chamber. Some types of spray driers are self-cleaning, having a long blade, or series of chain links, which revolves in the cylinder and removes any particles of egg from the side walls. In other cases, it is necessary to stop the drier a couple of times a day and thoroughly clean the machinery to prevent the egg powder from becoming tainted. The dried powder as it emerges from the discharged end of the drying chamber has a temperature of about 110 F. and may show a tendency to cling together in lumps. In many instances, a rotary spiral conveyor is used to obtain a cool, uniform product. At the end of the spiral conveyor, the dried product is usually emitted into a shaker, from which it falls into a barrel. In some of the drying plants, a conveyor is not used but the dried product falls from the heating chamber through a sifter into a large, shallow tray, where it is stirred before being placed into barrels.

Practically all egg drying plants have innovations of their own and now that we have about 75 driers in this country in comparison to 17 a year ago, many new developments in equipment which improve the quality are being found. In recent years, the spray method has been used almost exclusively for drying "whole eggs" and "yolks." To my knowledge there is only one pan or belt method drier in this country and this is employed for "flake whole eggs," used mostly by the baker. Many of the egg drying plants now in operation are converted milk-drying plants. However, many companies have put in new equipment with innovations or inventions of their own. The production of "dried yolks" in this country prior to the war was normally about 10 million lb. per year. Practically no "dried whole eggs" were packed because of demand. Production has stepped up in the past year from a normal production of 10 million lb. to a capacity now of over 300 million lb. per year. Just as an example, the normal consumption of liquid eggs is roughly 300 million lb., so, to make 300 million lb. of dried eggs, we must break over a billion lb. of eggs, which is equivalent to 10 billion eggs or about 30 million cases.

Due to foresight, the U. S. Department of Agriculture set up a program two years ago for an increased population of hens in the country. The provision was certainly well founded because production of eggs for 1942 will be about 30 per cent greater than a year ago, or a production of about 50 billion eggs in comparison to a normal production of 35 billion. Indications are that production in 1943 should be about 18 per cent greater than that of this year. We should, therefore, have ample eggs to take care of domestic requirements, our army and navy, and for lend-lease purposes. I believe the frozen and dried egg industry, due to our close association with the Department of Agriculture in Washington, did an outstanding job in a short period of 12 months to step up production to its present level—to increase production of dried eggs from 10 million lb. to 300 million lb. yearly certainly denotes coöperation by the industry.

I shall not delve into the other types of dried eggs which are, namely, "flake albumen" and "powdered albumen," as I am sure you gentlemen are interested in "dried whole eggs" and "egg yolks." The average analysis (expressed in per cent) of commercial, good quality dried egg products is for "dried whole eggs": moisture, 5.5; fat, 41.5; protein, 48.5; acid of ether extract, 1.5 to 2; and bacteria total plate count of less than 100 thousand per Gm.; "dried yolks": moisture, approximately 4.5; fat, 58; protein, 31; acid, 1.5 to 2; and bacteria of less than 100 thousand per Gm.

In the two types of dried albumen, the fermented has a moisture of 10 to 18 per cent, a protein of 67 to 75 per cent and the bacteria usually runs very high because the product has been fermented prior to drying. If the work being done on the drying of fresh whites can be developed satisfactorily they should have a moisture of 5 per cent, a protein of 74 to 82 per cent and less than 10 thousand bacteria per Gm. Due to the very low moisture in the "dried yolks" and "dried whole eggs," the bacteria in the eggs, when the barrel is originally filled, become very much less as the product is

stored. "Dried eggs" are normally free from molds, yeast and pathogenic bacteria. No case of food poisoning due to the use of dried eggs has been reported in this country. The color of "dried yolks" and "whole eggs" should be bright and have a good odor and a smooth texture.

In the conversion of "dried eggs" back to liquid, one can figure that it takes 10 eggs to make 1 lb. of liquid. In the converting of dried whole eggs to liquid form one would take 1 lb. of dried whole eggs to 2.6 lb. of water. For dried yolks one would use 1.25 lb. of water to 1 lb. of dried yolks, and to 1 lb. of albumen one would add 6.3 lb. of water. To make whole eggs from albumen and yolks one would take 1 lb. albumen and 3 lb. yolks, and add the correct amount of water. There are many users of dried whole eggs and yolks. They are used by the baker, and practically all of the prepared cake, biscuit, and custard mixes, have dried eggs in them. Bakers and manufacturers of ice cream, noodles, mayonnaise, prepared ice cream powders, package custard mixes, and animal feeds, use dried whole eggs and yolks.

It is surprising to know the many uses there are for egg whites or albumen. They are used in baking powder, candies, meringue or whipping powders, sizing of paper products, dyeing and sizing of printed silks, rayons and cotton materials, glazing of leather products and furs, body pigments for special varnishes, gluing of cork on bottle and jar caps, adhesive for gold leaf, emulsifying pharmaceutical preparations, clarifying beer and wine, marshmallow in bakeries and candy factories, lithographing and photo-engraving, emulsifying agent in alum, and tanning of light leathers. Therefore, one can see the wide expanse of the frozen and dried egg industry. If we hope to keep all of our plants operating after the present demand is over, we shall all have to find new uses for these egg products.

Discussion.—In the discussion of Manager Johnson's paper it was brought out that the color of egg yolks depends exclusively upon the feed hens receive and that dried egg products, except in emergency, are not likely to replace shell eggs for home use. The discussion was enlivened by a large number of veterinary officers on temporary duty in Chicago who were guests of the Association.

Food as an Implement of War

Food Industries takes exception to placing food as No. 1 need in winning the war on the ground that guns, planes, tanks and ships come first. Our hunch is that the morale of the people and the training of soldiers stand at the top of all necessities, with food for the soldiers second and arms third. But, since none of these is much use without the other and soldiers still fight on their stomachs, better not discount the fighting value of food, and food aplenty. Heap the British Isles with ordnance and stop the food-laden ships, then see what happens. Yes, food *is* winning this war.

"Cease and Desist"

The "cease and desist" order of the FDA should apply wherever questionable methods of food production are practiced, as well as to the selling of harmful food, drugs and cosmetics. For instance, when a college-trained veterinarian goes out to a farm and vaccinates a hundred hogs against cholera and tells his client how to escape the other plagues of the hoglot 'til the herd goes to market, healthy, sleek and fat, he performs a patriotic duty of the first rank. Compare this with the shiftless, antiscientific practices advocated by farm societies which play into the hands of Hitler, Hirohito, and Mussolini (and Pierre Laval), who would quickly show that crime against common sense does not pay. Under present conditions there is nothing very chauvinistic about playing fast and loose with farm-animal diseases. If farm bureaus advocate and practice hog-cholera vaccination by untrained men to save money (but they don't save a yen), they may lose their charters and the farmers their souls. So, "cease and desist" and get behind the development of a classical veterinary service is in order.

Charles Neil McBryde's Visit to Cuba

ARMADO RODRIGUEZ CACERES Y MARTINEZ
Havana, Cuba

ACCOMPANIED by his distinguished wife, a recent visitor to our capital was Dr. Charles Neil McBryde, eminent United States scientist, whose name is well known to Cuban veterinarians and to the entire world for his valuable bacteriological researches and particularly for his outstanding work in collaboration with his departed colleagues, Drs. Marion Dorset and W. B. Niles, in relation to the etiology and immunology of hog cholera.

In recognition of the illustrious personality of Dr. McBryde, we bring to these pages a short biography of this learned scientist in order that the livestock breeders of this country, principally those who are engaged in the breeding of swine, may know, however briefly, the eminent scientific attainments of one of the men to whom swine breeding owes most, since to the researches carried out by Drs. Marion Dorset, W. B. Niles and Charles N. McBryde we owe the discovery of the method of immunization against hog cholera, without which it would be impossible to control one of the gravest and most dangerous diseases that affect swine, namely hog cholera, a disease known to our rural population by the name of *"pintadillo,"* which has destroyed at times entire herds of swine, making almost impossible before this discovery the promotion of swine raising on as large a scale as can be achieved at present.

Right to left: C. N. McBryde, Marion Dorset, and W. B. Niles.

Dr. McBryde was born in Albemarle County, Virginia, his father being the late Dr. John McLaren McBryde, a distinguished educator of the southern United States. He pursued preparatory studies at the Columbia Classical Academy, from which he passed to the University of South Carolina, receiving from it the degree of bachelor of science. Shortly thereafter, he returned to Virginia following the appointment of his father as president of the Virginia Polytechnic Institute, from which institution he received the degree of master of science. He then entered the Johns Hopkins University and obtained the degree of doctor of medicine from that institution. He afterward devoted himself to the study of preventive medicine and received the degree of doctor of philosophy from George Washington University.

Attracted to the field of bacteriology during his medical studies, he devoted himself with great enthusiasm to this branch of the medical sciences and in 1901 was appointed to the Bureau of Animal Industry, United States Department of Agriculture, as scientific assistant in the biochemic division. He entered immediately on research work in relation to hog cholera in collaboration with Drs. Marion Dorset and B. M. Bolton. The results of these researches were set forth in a bulletin entitled "The Etiology of Hog Cholera," published in 1905, in which it was demonstrated for the first time in a conclusive manner that hog cholera is caused by a filtrable virus. This special discovery was quickly corroborated by the most famous research men of Europe and paved the way for later work on the production of a preventive serum against the disease.

He collaborated with Drs. Dorset and Niles in later research on hog cholera and

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was coauthor with them of a bulletin entitled "Later Experiments Concerning the Production of Immunity Against Hog Cholera," published in 1908, in which anti-hog-cholera serum was established as an effective preventive of this serious disease of swine.

Continuing his researches on hog cholera, he worked with Dr. Niles during the summer months for a number of years at the experiment station of the Bureau of Animal Industry at Ames, Iowa, returning to Washington each winter to work in the laboratories of the biochemic division in collaboration with Dr. Dorset.

In 1909, he was placed in charge of research work in relation to the preservation of meats and meat-food products and for a period of eight years devoted special attention to the curing and preservation of meats in the larger meat-packing plants of the country. In the course of these researches he discovered the cause of ham souring, which had occasioned heavy losses in the meat-packing industry. In a bulletin entitled "A Bacteriological Study of Ham Souring" he described the cause and manner in which ham souring occurs and indicated suitable preventive measures. Some of the principal meat-packing houses in the United States today still designate typically soured hams by the name of the subject of this sketch and his publications on the preservation and curing of meats continue to be used for reference and consultation.

During the war which devastated Europe from 1914 to 1918, in which the United States entered in 1917 with a view of ending this horrible conflagration which enveloped a large part of humanity, he served, after his country entered the war, upon a commission designated by the chief of the Bureau of Animal Industry to make a complete survey of all phases of the meat-packing industry with a view to the elimination of unnecessary waste and the further conservation of meats and meat-food products.

Upon the retirement of Dr. Niles on account of age from the office of director of the Bureau of Animal Industry Experiment Station at Ames, Iowa, Dr. McBryde was appointed to this position, which he still holds.*

The distinguished subject of this sketch is the author of numerous publications and bulletins relating to animal diseases and the curing and canning of meats and meat-food products. He is a member of numerous scientific societies, among which are the following: Fellow of the American Association for the Advancement of Science and of the Academies of Science of Iowa and Washington, D. C.; Associate Fellow of the American Medical Association; Society of American Bacteriologists; American Public Health Association; United States Live Stock Sanitary Association; Official Research Workers in Animal Diseases of North America. He is an honorary member of the American Veterinary Medical Association and the National Association of Bureau of Animal Industry Veterinarians; belonging besides to the National Geographic Society and the Iowa State Historical Society. He is an honorary member of the Iowa Veterinary Medical Association, one of the largest veterinary organizations in the United States and an honorary member of the Eastern Iowa Veterinary Association, which is said to be the largest sectional veterinary association in the world. During the last ten years Dr. McBryde has been a member of the Committee on Communicable Diseases of Swine of the United States Live Stock Sanitary Association and for three years he served as its chairman.

Recognizing his great merits, Dr. John R. Mohler, chief of the U. S. Bureau of Animal Industry, appointed Dr. McBryde as chief of the biochemic division of that bureau upon the death of Dr. Dorset in 1935. After careful consideration of the great honor thus shown him, Dr. McBryde, with the approval of the chief of the Bureau, decided to remain as the director of the federal research station at Ames, Iowa. Although the appointment constituted one of the most coveted awards to which he could aspire, as the head of an important division of the Bureau at Washington with the opportunity to carry on and direct essential researches in his chosen field, he preferred to continue his research work in

Iowa, where he had made many friends and established valued contacts with the veterinarians of the Middlewest, with the opportunity to attend important veterinary conventions in Iowa and neighboring states.

In December, 1911, Dr. McBryde was chosen to represent the United States Department of Agriculture at the thirty-eighth annual meeting of the American Public Health Association, which was held at Havana. Among the delegates to this convention were public health officials from the United States, Canada, Mexico and Cuba, including many famous medical authorities of the day. As a distinguished member of this convention, he had an opportunity to visit our capital and its environs. Now, on his recent visit, thirty years later, he could note the wonderful improvements in all parts of the city and, like all visitors, he was tremendously impressed by our magnificent capitol building. He declared that in cleanliness and beauty Havana, in his opinion, is surpassed by no city in the United States. He was also much impressed by his visit to the Ministry of Agriculture and the Bio-Pathological Station at Santiago de las Vegas and was much gratified by the hospitality that was shown him. He accorded the highest praise to the Bio-Pathological Station: its fine location, excellent buildings and complete, modern equipment and was also most favorably impressed with the staff of distinguished scientists connected with it. He compared favorably the elaborate plant for making anti-hog-cholera serum and hog-cholera virus with the best in the United States and declared that the Bio-Pathological Station did honor to Cuba and afforded striking evidence of the progress of veterinary science in our country, to which the Government can point with pride because of its efforts to encourage and develop animal husbandry as an important source of national wealth.

In concluding this brief sketch of a notable man of science, we wish to express the pleasure we derived from the visit with which he honored us and assure him of the great admiration and affection which he has inspired in us by his presence. To him and to his gracious wife we extend our best wishes for their continued happiness and prosperity, and we hope that they can find the opportunity to come again in the near future and pay us a longer visit.

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[*Under the heading "Dr. McBryde Retires" *Agriculture Exchange* of April, 1942, says:

"Ending a brilliant scientific career of 40 years' service, Dr. Charles N. McBryde, co-discoverer of the serum that protects hogs from cholera, retired February 28th. He was closely associated with the late Doctors Marion Dorset and W. B. Niles in veterinary research that made swine-growing safer and more productive. The achievements of these three musketeers in the service of the U. S. Bureau of Animal Industry brought world acclaim.

"Dr. McBryde in recent years conducted the principal investigations with a new product, crystal violet vaccine, which offers further possibilities to the swine growers in protecting herds from losses by this malady.

"In addition to his hog-cholera studies, Dr. McBryde also conducted experiments in the preservation of meats and meat food products which resulted in a method of reducing spoilage in hams.

"His achievements in the field of research won for him the opportunity to direct an important research unit in Washington as Chief of the Biochemic Division of the Bureau of Animal Industry. But stationed as he was at Ames, Iowa, in charge of the Bureau experiment station, he preferred the quiet sphere of a field laboratory to the harassed life of a Washington official, wrestling with administrative problems and battling metropolitan traffic.

"On Dr. McBryde's retirement, Secretary Wickard expressed his appreciation for the many years of brilliant service to the Department."—Ed.]

EDITORIAL

Horses in the March of Man

Man's attempt to discard horses may be his downfall. Horses came out of oriental antiquity and proceeded to build up the world of today. With horses agriculture developed and flourished, populations increased, wealth accumulated, and nations were defended. Surveying the part played by horses in World War I, a British officer of high rank wrote: "The nation going to war without horses is licked from the word go." While the events of World War II may seem to discredit that prediction, there is no assurance that it does. Animal transport is still tremendously vital in military operations and what the future holds out in that connection is problematic.

Came gasoline, the fuel for which the whole world is now fighting, and the horse, erringly pronounced useless, is overlooked in the war effort. Mechanization, worthless without gasoline and rubber gets all the attention, even in longtime farm planning. Whether the strategy of agricultural officials is wise remains to be seen, but we are hopeful that this fight for the American way of life will not be sacrificed on the altar of agricultural mechanization in the drive for food.

Laissez Faire Unwise

To ravish one basic industry for the benefit of another may be freedom running amuck at its own peril. Salvator (*The National Horseman*, March, 1942) names Herbert Gasson as the propagandist hired by the motor interests to drive horses from every landscape. Veterinarians need not be reminded of the twisted statistics used to abolish the use of horses in farming. The Gasson program was called "progress." In our country his success was amazing. He made farming quite horseless. In Europe, the same kind of campaign by the same man was a complete flop. Governments stepped in to prevent their farmers from bankruptcy or begging for subsidies running into astronomical figures, as our farmers have had to do. "As an economic destroyer, the motor vehicle," says Salvator, "has everything else backed off the board." But what it has done to the average family in terms of debts, to agriculture in abandoned farms, to the thousands killed on the highways, to the millions crippled, and to property lost in billions, seems to be forgotten by the planners of the horseless age, as we go into military operations, which will bog down when petroleum gets scarce and tires wear out.

As of 1942, we realize that the need of more horses is too vague to attract attention. We can look forward into the years of a long conflict only from the viewpoint of past experiences. In 1915-1917, American farmers were able to spare all of the horses the warring nations needed. Today, the total number in the whole country is 10,000,000, only half of which are fit for military service. Army purchasing boards find difficulty in filling their requisitions in our gasoline-swept land. The most wishful dream of the big motor interests has come true—we are practically a horseless people, thanks to the propaganda carried out in magazines, newspapers, agricultural colleges, universities, farm societies and Congress, all with boastful determination to create a horseless age, come what may. Our thesis is simply this: Mechanical farming does not pay in the long run and it mines the soil of vital elements without any compensatory fertilization, but that is insignificant compared with the shortage of horsepower on the farms when most of the gasoline and horses have to go to the country's armed forces. "Food for freedom" will then be the "song of the dying swan."

Food, Not Machinery, Will Be the Decisive Factor

Inasmuch as the principal effort of veterinary science goes to the fields of food production, food inspection and food gradation, the JOURNAL, long before Pearl Harbor, was impelled to emphasize on various occasions that the American people must remember that food is an implement of war as significant as the implements of destruction. It was also pointed out that the longer the war lasts the more critical the food situation will become, and that conditions in that respect will not improve until long after the last bomb is dropped, for nowhere is war more destructive than in food production. The greatest inhumanities of war are not of the armies but of the famished millions the armies produce and the misery and pestilence following in their wake.

The *Foreign Letter* of the Whaley-Eaton Service (Apr. 21), in reporting a survey of the food situation confronting Europe says: "Food may be the decisive factor [of the war] rather than industrial production." The letter paints a doleful picture of the food situation, confronting not only the armies in the field but also the civilian populations which in many places have become too weak from hunger to work in the fields. The population of France has been "raped" to furnish food for Hitler's legions, the scorched earth of the Ukraine leaves that country without hope of a harvest this year, Eire is short 40,000 tons of wheat, and Britain is carrying on as usual under strict rationing of food and clothing. Quoting: "Even German officers returned from the front, tell their intimates that they can not stomach it. After all, they say, they were summoned to take part in a glamorous crusade, not to wage war on babies, not to blind their eyes to myriads of starving people, not only without adequate food, but almost without hope of food, where human beings have become emaciated beasts and hunger takes its unremitting toll."

Such messages from reliable sources remind the veterinarians of the United States that despite our apparently sufficient granary, armies marching in defense of the country can soon make us realize how foolish it was to complain about tires and sweets.

Species Better Known Than the Genus

Why the veterinary profession remains an X to people is not hard to answer, paradoxical as that may seem. Our work is felt and needed on every farm and in every home, yet not one average citizen out of each hundred thousand knows that a veterinary service exists. Unfortunately, the fault is self-made. Committees on public relations are well aware of this. They have to break through confusion caused by the multiplicity of names under which veterinarians labor. The word "veterinary"—the genus—has been so widely avoided that the species find difficulty in getting a foot hold in the upward climb. Although all veterinarians are a unit of the same educational origin working to the same end, many of them, especially of the upper cadre, are not so classified in the public mind. Many are known, not as veterinarians, but as animal hygienists, pathologists, sanitarians, inspectors, bureau workers, etc., in endless file, not connected with the generic term. When these names have been abolished and we are all known as veterinarians, the committees on public relations will have clear sailing and the public will understand that all of these species belong to one genus.

The animal experts of the Army are known as veterinary officers and their service as the Veterinary Corps. Here, the generic term is not dodged. Moreover, in planning the procurement and assignment service of three professional groups (physicians, dentists and veterinarians), the doctors of veterinary medicine were designated as such, not by grandiose synonyms based on affectation that would confuse the public. In short, the name of our service where there is serious business to do is not deleted. The genus raises its head and takes command, proud of the name so many species try to disown in times of peace at the expense of progress.

Veterinary Medicine of the Spanish-American War

The two cuts below are borrowed from *Veterinary Military History of the United States** for the sole purpose of showing that veterinary military medicine in this country has kept pace with the march of the nations in the last 45 years.

When troops were mobilized for the Spanish-American War† in 1898, veterinarians *in statu quo* had a strangely undefined rank (?) between the soldier and the officer. Whether the military veterinarians of that period ranked between the private (1cl.) and the top sergeant, or between the latter and the second lieutenant, is unanswered in War Department records. The situation was further complicated by lack of agreement between the armed forces and the quartermaster corps. In regard to veterinary medicine, each of these two groups "ran its own show." While the cavalry and artillery arms set an educational standard for this undefined grade as far back as 1879, the quartermaster department went into the Spanish-American War still employing the "no-school" type of veterinarian, which has hampered the development of veterinary medicine up to the present time at incomputable cost to the national security, but that is the theme of another thesis. In the military service, the disorder took an appalling toll in sickness and death of public animals, and it left behind spreading contagions for the civilian service to stamp out through a long stretch of post-war years. The army went to Cuba unmounted, while its horses and mules were dying of influenza or ridden with glanders in Florida camps. Even "Teddy's" Rough Riders went in afoot.

This picture is of F. H. Davis, D.V.S., quartermaster veterinarian of the Spanish-American and Philippine wars, who saw service in that rôle all the way from Florida to Corregidor. Dr. Davis, now practicing at Biloxi, Miss., was one of the first small animal practitioners in this country. He conducted a dog hospital in Buffalo, N. Y., before entering the military service in 1898.

In short, the veterinary service was not organized into a disease-fighting unit, and had neither means nor authority to enforce sanitary regulations. Commanders of troops and stations ruled, and inasmuch as none of them had any knowledge or experience in the handling of animals *en masse*, one may leave analysis of results to the imagination. But, why spank our own army? Contemporaneously, Britain with its high ranking veterinary officers precipitated the greatest animal-disease tragedy of modern times in South Africa. It too, had no organized veterinary military service.*

The Regular Army veterinarians were permitted to wear a kind of nondescript

*Veterinary Military History of the United States, Vol. 1, pp. 259-263. 1935.

†Described in American history as a small war with big results. It brought the first outward break between the United States and Germany and yielded the Philippines which American and native troops are now defending against Japanese invasion.

*The British lacking adequately organized veterinary service suffered tremendous reverses on the western front in 1914-1915, owing in part to the breaking down of animal transportation through losses from disease. When organized in later months the R. A. V. C. became one of the important services of the British war effort—a pattern of merit by contrast with former experiences.

uniform decorated with horseshoe caducei on the upright collar—clean sleeve, clean shoulders, while those of the quartermaster corps wore whatever they could garner in the form of military raiment, and they worked in the absence of stated regulations, other than the routine whims of their immediate superiors. Only the more capable

Here is the late J. C. Schwencke, graduate of the Royal Veterinary College of Copenhagen, who served as a veterinarian in the Georgia National Guard at Chickamauga Park in 1898. He had the arbitrary rank of veterinary-sergeant of the Georgia state militia. His assignment was Battery B, Georgia Artillery Regiment.

ones among them (such as appear in the illustrations herewith), who won the confidence of their commanders, were able to use their knowledge and experience to advantage. On the whole, however, the animal-disease tragedies of the Spanish-American and the Boer wars stand out as a challenge to the wholesale inhumanity and wastefulness of even minor wars, when the teachings of medical science are thrown to the winds through the arbitrary rulings of incompetent administration officials in preparing for war or in war itself.

These hitherto presents *vis à vis* the current set-up in the Army of the United States, which now has a veterinary corps operating under carefully studied regulations and commanded by a veterinary brigadier-general, are proof that American veterinarians have not slumbered while national defense was being transformed from sinister nothingness to a formidable armed force, fighting for freedom in many parts of the world with veterinary officers watching over the soldier's ration.

Dogs for Defense

Nothing in dogdom is more interesting and useful than the training of dogs for military purposes. While the original purpose announced by Dogs for Defense, Inc., was to train sentry dogs for factories producing military matériel, the accompanying picture forecasts the use of dogs in combat operations. In fact, a dog service for troops is said to be in the making, since Quartermaster General Edmund Bristol Gregory has requested that 200 trained dogs be turned over to the Army as soon as possible. Dogs between 1 and 5 years old

—*Photo by Jones*

German Shepherd (right) and Afghan Hound under training by Dogs for Defense, Inc.

are wanted and, thanks to the spirit of the organization, the country is being combed for the right sort, trained or untrained.

Veterinarians are urged to take an interest in this project and to aid Dogs for Defense, Inc., in every way possible. Dr. Edwin R. Blamey, 17 West 71st St., New York City, distinguished veterinarian of the American Kennel Club, will be pleased to furnish details about this first attempt of the War Department to give official recognition to dogs.

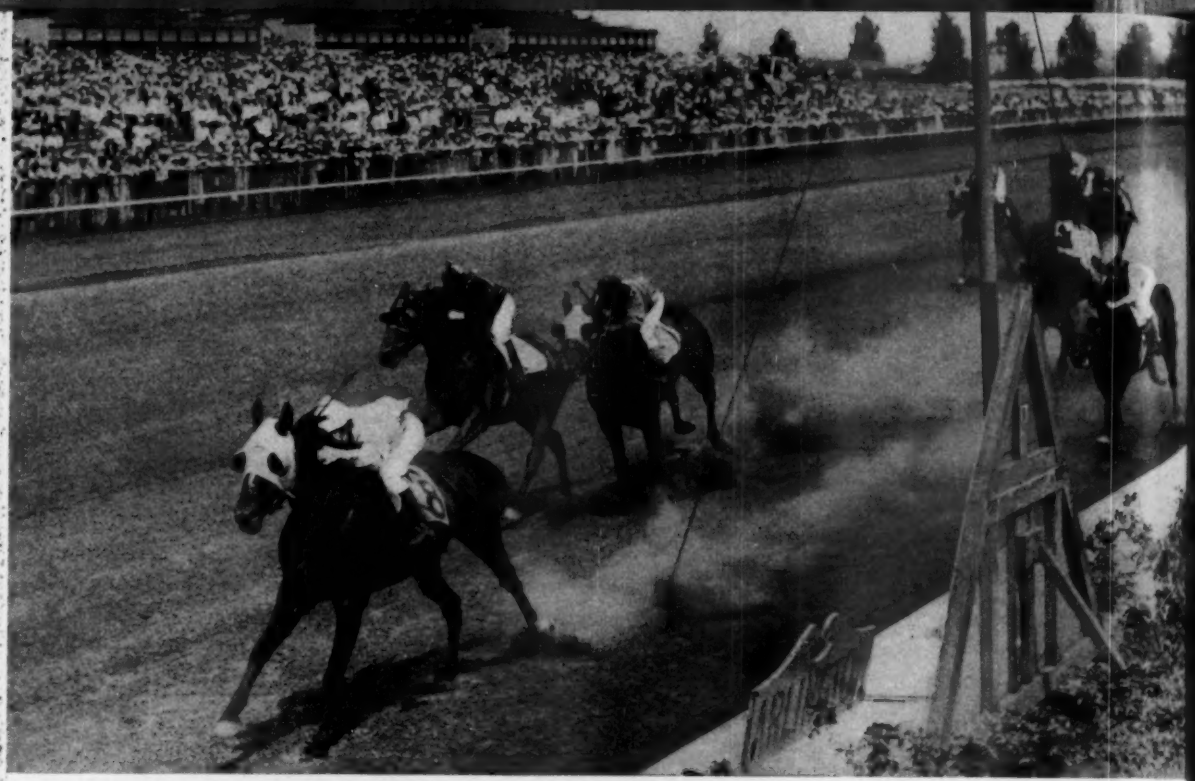
Pre-Convention Notes

Section Programs The Committee on Program for the seventy-ninth annual meeting of the AVMA, to be held in Chicago, August 17-20, has practically completed the literary programs for the sections on General Practice, Sanitary Science and Food Hygiene, Research, Small Animals, Poultry, and Surgery and Obstetrics.

The general session programs also are rapidly being filled. Outstanding speakers will present important papers on veterinary aspects of the nation's war needs. There will be a general session on each of the four days of the convention.

Educational Exhibits Under the direction of Colonel J. E. Noonan and Lt. Colonel L. L. Shook of the Army Veterinary Corps, a remarkable exhibit of animal-food products used by the armed forces is being arranged. A series of refrigerated display cases spanning nearly 100 linear feet will show a complete line-up of the meats and meat foods, including fish and poultry, which are included in the rations of "the best fed army in the world" and over which the Veterinary Corps has complete supervision as to wholesomeness, purity, and conformity with government specifications. Fea-

The roof garden of the Stevens Hotel, Chicago, looking east and north over Lake Michigan. The spectacular Buckingham Fountain, which is colorfully and brilliantly lighted at night, is in the foreground. The Stevens is headquarters for the seventy-ninth annual convention, which will be held in Chicago, August 17-20, 1942.



Arlington Racetrack

One of several racecourses in Chicago, which are easily accessible by train from the Stevens Hotel. The racing season will be in full swing during the annual meeting.

tured in the display will be meats and meat-food products specially prepared for Army use, including the highly acclaimed boned beef, developed to save transportation and storage space and to facilitate handling.

Colonel Noonan and Lt. Colonel Shook are co-chairmen of the Committee on Veterinary Military Affairs for the convention and are taking full advantage of Chicago's unexcelled facilities to stage this meat-food exhibit. In addition to the exhibit of products, there will be photographs, drawings, and charts depicting methods of preparation and inspection.

The regular educational exhibits, under the direction of J. S. Bengston of the Chicago Pathological Laboratory, U. S. Bureau of Animal Industry, promise to surpass all previous displays of this type. Invitations to participate in this increasingly popular feature of Association sessions were extended to some 30 veterinary schools, veterinary science departments of agricultural colleges and experiment stations, regional laboratories, and other institutions. In response, a number of unusually fine exhibits of pathologic and research material have been offered. In addition, the U. S. Bureau of Animal Industry and other Department of Agriculture divisions are arranging to send new exhibits not previously displayed at AVMA meetings.

Reception & Banquet

In keeping with the times, the Committee on Entertainment has arranged, with the approval of President Jakeman, to make one social function of the President's Reception and Dance and the Annual Banquet. This combined event will be held on Wednesday evening, August 19. The grand ballroom and its foyer at the Stevens Hotel are admirably suited for an innovation of this sort. The reception will precede the banquet, which will be followed by entertainment and dancing.

R. F. Vermilya is chairman of the Committee on General Entertainment and Mrs. C. L. Miller of Oak Park, Ill., has been selected by the Ladies' Auxiliary of the Chi-

cago Veterinary Medical Association to head the ladies' entertainment activities.

Golf Tournament The champions of the first AVMA golf tournament—the team representing the Iowa state association—which was held last year at Indianapolis have indicated their willingness to defend the title against all comers at a tournament to be held as a post-convention event on Friday, August 21.

State associations are invited to name teams of four players for the competition, all of whom must be members of both their state association and the AVMA. Prizes will be awarded.

E. M. Lynn, chairman of the committee in charge of the tournament, is directing an invitation to the state associations to name teams to represent them.

Olympia Fields, famous championship course, has been tentatively selected for the matches.

Hotel Facilities The Stevens, headquarters hotel, has approximately 3,000 outside guest rooms, each with private bath or shower, or both, and circulating ice water. Rates are the most moderate of any first-class metropolitan hotel in the country. Following is the price schedule:

Room with double bed and bath, for one, per day—$3.25-$7.00.

Room with double bed and bath, for two, per day—$4.75-$8.50.

Room with twin beds and bath, for one or two per day—$6.00-$12.00.

Parlors—$5.50 and up.

A special room-assignment service is being made available to those attending the convention whereby it will not be necessary to register on arrival. Persons registering in advance will receive a confirmation from the Stevens Hotel denoting their room number for the period of their stay. Upon arrival, they may go directly to the floor designated where room keys will be furnished by the floor clerk. This will avoid congestion and delay at the main floor registration desk.

The Medical Battle Order

Elsewhere in this issue (page 525) there is a complete outline of the battle order of the medical, dental and veterinary professions, reprinted from a current issue of the *Journal of the American Medical Association*. The object is to remind all veterinarians of the "medical unity" developed from coast to coast to combat the country's enemies, and to re-assure the members of the Association that they are classified as alert and ready volunteers in the fight for American freedom.

The AVMA Conventions

An AVMA convention is not a cohort of rollicking playboys but a gathering of serious-minded men convened for the discussion of grave problems of national significance. The registrants are key men engaged in the preservation of a fundamental industry—the raising of healthy livestock and the inspection of food livestock produce. Seventy-eight hotel managers will underwrite the behavior of American veterinarians who have been their guests for that number of annual sessions. Yet, these conventions do not lack life, glamor and spirit. Every one of them has left a lasting impression of work well done, and each one has erected a milestone along the profession's line of march. The convention of 1942 will be no exception. Questions vital to the nation's existence will predominate. "Come and help to answer them," will underline the coming announcements.

Attending Chicago Meeting Not Expensive

The AVMA convention in August will be less expensive to attend than former ones. The hotel expense will last but three days—Monday, Tuesday and Wednesday. As the meeting closes on Thursday, registrants can be on their way home that evening. In calculating rooms at $3.50, and meals (which are reasonable in Chicago), the total expense will be "vest-pocket money." Moreover, Chicago is the hub of a wheel covering a dense veterinary population. Traveling expenses for many will be trivial.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Torsion of the Uterus in Cows and Epidural Anesthesia

W. A. TAYLOR, B.V.Sc.
Osgoode, Ontario

ROTATION of the uterus on its long axis in either direction is a deviation of great importance in the bovine species. It is almost wholly confined to the cow because of the anatomical relations of the gravid uterus and attachments which favor rotation: omasum, abomasum and omentum anteriorly, rumen to the left, abdominal wall to the right, the broad ligament above, and the free horns. The arrangement of these, with the body fixed to the vagina, is conducive to torsion. Though usually occurring in mature cows, first-calf heifers are not exempt. It occurs mainly in closely stabled cows and rising with the hind feet while the knees are still on the floor seems to be an etiologic factor. The accident usually occurs immediately before parturition, rarely at an earlier stage of gestation. When the cervix has already relaxed and the uterus is molded on the fetus, that is the favorable moment for torsion to occur. Bloating of the rumen, claimed as one of the causes, is not entertained by the author as the cause. It is not reasonable to suppose that torsion takes place long before parturition, since often the calf is born alive.

The affected cow evinces colicky pains by kicking the belly with the hind legs and by restlessness—getting up and down—straining, diminished appetite and suspended rumination. The feces are harder than usual. The diagnosis is confirmed by the twisted cervix, revealed by manual exploration. The twist, likewise, reveals the extent and direction of the rotation. As a rule, the history is that of a cow due to calve the week before found straining in vain for most of a day, getting up and down, and otherwise uneasy. The periods of restlessness may be short and followed by long intervals of quietness. In the standing position the sciatic ligaments are seen to be relaxed and sunken and the upper commissure of the vulva drawn forward. On vaginal examination, the lumen is found to be so narrow that it is difficult to pass the hands forward to the os uteri. Spreading out the hand in the vagina, as in the case of a normal adult, is not possible in a case of torsion of the uterus. The screw-like folds of the vagina prevent it. The cordiform constriction is due to the tension of the broad ligament. When the top of the hand turns to the right in the exploration, the torsion is to the right. In recent torsion the prognosis is favorable provided the calf is alive and the cow has not been meddled with. Long-standing cases are less favorable. One attack does not predispose to torsion at the subsequent pregnancy.

The first step in the treatment is to provide plenty of room. The operation can not be successfully performed in narrow quarters. Caudal anesthesia is employed to overcome objectionable straining and prevent pain.

The cow is cast on a spacious floor or grass plot, with the legs tied together and quickly rolled in the direction of the twist as the fetus is held fixed with a hand hold on one leg, the fetal fluid having first been evacuated. There is advantage in having

Abstract from a paper presented before the Central Canada Veterinary Association, Ottawa, Ont., Jan. 21, 1942. Published in the Canadian Journal of Comparative Medicine and Veterinary Science.

the hind quarters elevated. If the torsion is not removed the operation is repeated. Disappearance of the twisted vagina is immediately perceived. Thereafter delivery follows the usual course.

Caudal Anesthesia.—Epidural anesthesia is a useful procedure. It is simple, safe and usually satisfactory. Introduced by Siccard of France in 1901, it has been widely used at home and abroad during the past few years.*

The indications include reduction of the prolapsed vagina, uterus and rectum; surgical interventions on the posterior limbs, abdomen, bladder, tail, urethra, vulva; dystocia, and genital examinations.

The injection is made with a 10 or 20 cc. syringe and 18-gauge needle, 2 in. long using 10 to 20 cc. of a 2 per cent solution of procaine. The site is just behind the first coccygeal vertebra. Care is taken to keep exactly on the median line to avoid interference with the penetration, and to direct the needle at an angle of 60° from the horizontal plane. At the distance of 1 to 1½ in. the needle strikes the floor of the neural canal. The fluid should be injected slowly—one to two minutes. If there is resistance to the delivery of the fluid, the right space has not been entered.

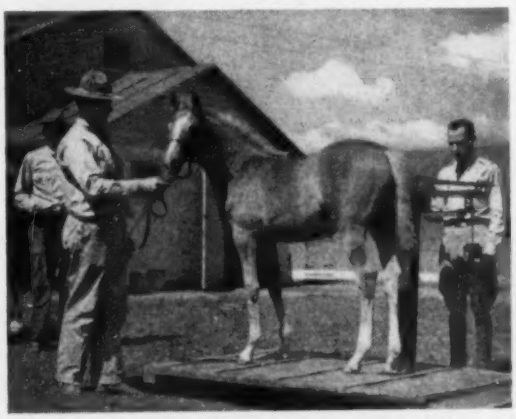
Ammonium Bicarbonate in Wound Treatment

Ammonium bicarbonate in a 1 to 2 per cent solution, practically duplicates the secretion of maggots as a stimulant to the regenerative process in wounds. Its action in that rôle is comparable to that of allantoin and urea. In maggot secretion, ammonium bicarbonate is associated with the presence of the enzyme urease. The low cost lends itself for use in veterinary surgery, soaked in gauze or other wound packings, or in the form of an irrigating liquid. The work of Robinson *(American Journal of Surgery,* 1940), frequently abstracted elsewhere *(E.S.R., R.A.E., et al.)*, is the basis for this recommendation.

*Epidural anesthesia was first demonstrated, publicly, in the United States by Prof. Franz Benesch of Vienna before the annual clinic of the AVMA at Lexington, Ky., in 1926.

Equine Abortion*

In 1886, W. L. Williams reported an outbreak of abortion in mares in Illinois. His description (clinical and pathological) corresponds to what is now known as Salmonella abortion. In 1890, Smith and Kilbourne isolated a paratyphoid organism from the vagina of a mare that had aborted. Unquestionably, this was *Salmonella abortivoequina* which was first isolated by Good of the University of Kentucky in 1911. In 1916, this organism was named *Bacillus abortivoequinus* by Good and Smith. Since then it has been possible to diagnose outbreaks of epizoötic abortion in mares, and



—Courtesy of the National Horseman

Captain Jennings weighing a foal. Constant supervision of the health of the foals is an important part of the veterinary service at remount depots.

in later years to prevent the disease by vaccination. In more recent years, Dimock has been able to class infectious abortion in mares into three groups: (1) Salmonella abortion, streptococcic abortion, and virus or epizoötic abortion.

Salmonella abortion is an acute infection with a period of incubation of 14 to 28 days. The organism enters the body by ingestion and ordinarily disappears from the mare's uterus in 30 days after the abortion. Vaccination with *S. abortivoequina* bacterin during the fourth month

*Wm. E. Jennings, Capt. V. C., U. S. A. Quartermaster Depot, Front Royal, Va.: Equine Abortion. The National Horseman, lxxviii (Apr. 1942), pp. 28-31 and 58-59.

and again during the ninth month of gestation is preventive.

Streptococcic abortion is a chronic disease. The organism (*Streptococcus genitalium, et al.*) is either in the uterus or enters at the time of service. The condition is manifested by heaviness of the placenta and its delayed expulsion, abnormal uterine discharges, and weak, nonviable or dead foals. The diagnosis is made by isolating the streptococcus in the fetus. Prevention lies mainly in the breeding of healthy mares to healthy stallions, sexual rest, and particularly to avoid breeding until the twenty-seventh day after foaling.

Virus abortion is more sweeping in its spread. The morbidity may be high. Its character is epizoötic. Mares abort without warning, show no physical reaction, and the aborted fetus has characteristic lesions (heart, spleen, colic lymph-node hemorrhages, hydrothorax and occasionally ascites, and areas of hepatic degeneration). As a rule, the fetus is bacteriologically negative, and the mare's blood is negative to complement fixation. Occasionally, *Shigella equirulis* and streptococci, unrelated to the disease, can be isolated in foals born near the end of normal gestation. The virus cause is proved by experimental inoculation of filtered material and by the presence of intranuclear inclusion bodies in cells of the lungs and liver.

Miscellaneous causes account for a few abortions (7.7% of 386 abortions). These include staphylococci, nonhemolytic streptococci, malnutrition, twin pregnancy, injury, twisted cord and dystocia.

Prevention of equine abortions includes four important steps: (1) vaccinate all pregnant mares against *S. abortivoequina* during the fourth and ninth months of gestation; (2) control streptococcic abortion by genital hygiene; (3) checkmate virus (epizoötic) abortion by keeping mares in small groups; (4) keep mares healthy.

The Register of Veterinary Surgeons, 1942 (Great Britain), contains 3,983 names, an increase of 128 over 1941, or 574 over nine years ago.

Sterility in the Bull: A Comment

I read with interest the article on sterility in the bull by Fred W. Miller in the February, 1942, issue (page 147) of the JOURNAL, particularly concerning diseases resulting from a disregard of natural laws, and conditions which interfere with nature. In the community where I was raised [Holland], no one would think of keeping a bull in the stable all summer. Everyone seemed to know that idleness interfered with fertility. The bull was secured to a cable 30 feet long with a chain 25 feet long. The cable had a steel stake at each end to drive into the ground and the chain was attached to it and the bull's nose ring. This gave the bull an area of 50 feet in diameter for exercise. Cows in heat came to him for service.

When a bull is kept in the stable the stall is generally small and not always clean. In busy seasons owners are apt to let the bull's hoofs grow long and soreness results.

In pasture, bulls get plenty of exercise, sunshine and fresh air; rain washes his body, grass acts as a laxative and tonic, and his feet will not require trimming. Besides, bulls at pasture seldom get vicious. I realize that under the American system this can not always be carried out but I do believe that staking the bull in the pasture with the cows is better than any other treatment for low fertility.—*Chas. Haasjes, D.V.M., Shelby, Michigan.*

Suturing wounds in such a way as to impose the least possible impediment to the flow of blood to the approximated edges is rule No. 1 in the closure of wounds with sutures. The finest asepsis fails where blood supply is blocked.

A tightly drawn suture running in the direction of the circulation is less harmful than a loose one that dams blood vessels. Anemic wound edges heal badly, if at all.

The value of livestock on American farms as of January, 1942, was $7,008,411,000 compared with $5,320,000,000 at the end of 1940.

Unusual Osseous Newgrowth in Mules

WHILE SERVING in the Army of the Alps (Bayanne and Tarascon), the author observed osseous neoformation in mules that has not been hitherto signalized.

1) *Exostoses of the Mandible.*—These are well known to farmers and veterinarians of the region, and they occur in mules of all ages. They consist of bony apophyses of one of the mandibular branches, often pediculated and terminating in a large, flat button 6 to 7 cm. in diameter and 2 to 4 cm. thick. They are painless and do not interfere with mastication. Ablation is easy: an incision around the base, a pry with a sharp horseshoer's buttress, and the application of actual cautery for hemostasia. In two weeks, cicatrization is complete.

2) *Ossification of the Suspensory Ligament.*—This is observed in a relatively large number of mules, mostly aged ones, but not necessarily so. It is not painful on palpation and occurs at the sesamoidean and suprasesamoidean region of the fore limbs. According to the subject, the lameness is severe or slight; there may be no claudication at all. Palpation reveals a hard, embossed mass continuous with the sesamoid. Puncture firing produces an active reaction and aggravation of the lameness, which, however, subsides either from treatment or rest, the growth remaining hard and irreducible.

The development of such a growth independent of all inflammation might seem to be an osseous proliferation due to traction of the suspensory on the summit of the sesamoid, the osteophyte gradually gaining the substance of the ligament, but the autopsy and dissection points to other factors.

Where the skin covering the flexors (perforans and perforatus) is removed, these are found to be exempt. On the other hand, the extremity of the suspensory, hard and embossed, is continuous with the sesamoid bone which is enlarged posteriorly and thus engages the perforatus (fig. 1). Dissected, the mass is found to be mostly a cartilaginous growth interspersed with osseous nodules. Preparation by boiling (fig. 2) reveals osseous foci of various sizes within the cartilaginous mass. The nodules are 2 to 4 cm. long, irregular, crenellated, hollowed out. The smallest are at the superior part and ordinarily they are rounded and more or less enrobed in cartilage.

While the medial sesamoid may be normal, the lateral one presents marginal pro-

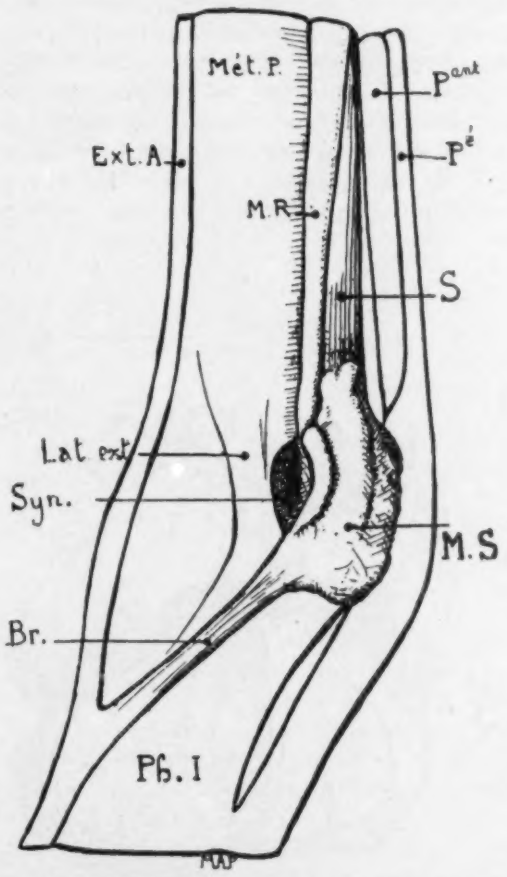


Fig. 1—Map drawn from the left leg (lateral view) of an affected mule, 16 years old.

Met P, the metacarpus; M R, lateral small metacarpus, Ph I, first phalanx; Ext A, anterior face of the metacarpus; Lat ext, external lateral ligament; Pant, the perforans tendon; Pe, the perforatus; S, suspensory ligament; M S, the newgrowth; Syn, articular synovial membrane; Br, branch of the suspensory ligament of the extensor pedis.

Marcel Petit: Néoformations osseuses chez le mulet, Revue de Médecine Vétérinaire, xcii (May-June, 1941), pp. 113-117.) A free translation.

liferation of its external border, and several osseous vegetations also are observed on the metacarpus, the first phalanx at the level of the middle inferior sesamoidean ligament. It is, therefore, an ossification process independent of the sesamoids in regard to origin. It interests mainly the superior suspensor of the fetlock. To explain such lesions, one invokes the usual processes of connective neoformations. As Pader stated, they are "the effects consecutive to tendinous inflammation of the sesamoidean apparatus." However, in the mule they do not seem to be consecutive to inflammation of the tissue involved. At least, the inflammation is discrete and passes unnoticed. It seems more like a primitive process of this hybrid consecutive to mechanical excitation. This can be claimed, besides, on account of its relative frequency in mules and from the easy way in which it can be diagnosed. The prognosis varies with the way the mule is worked. As a rule, the affected animal is serviceable for farm work. Lesbre pointed out the frequency of osseous lesions in mules.

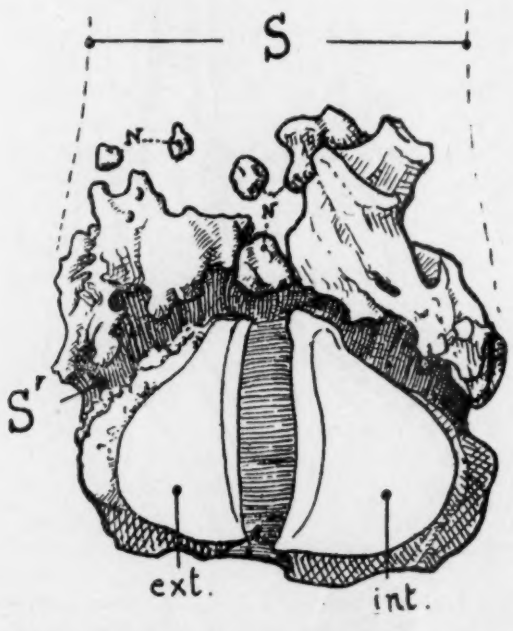


Fig. 2—Posterior view of the newgrowth shown in figure 1.

Ext and int, lateral and medial sesamoid bones; S, marginal limits of the suspensory indicated by the dotted lines; S', the rest of the suspensory attached to the sesamoids; N N, secondary osseous nodules.

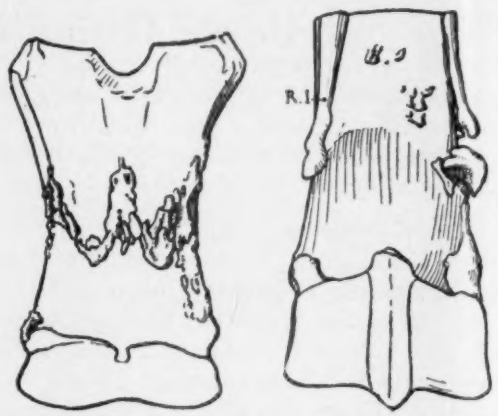


Fig. 3—Posterior view of the first phalanx (left) and metacarpus of the right leg of the same mule, showing various osseous proliferations.

[While the analogy between the lesion so well described by Monsieur le Docteur Petit in mules and the commonly lesioned fetlock of American racehorses, nicknamed "osselets," is not insisted upon, it is, nevertheless, incontestable that the discrete etiology may have a bearing upon the frequency of their occurrence.—Ed.]

References

[1]Encyclopedie Cadeac, Pathologie chirurgicale des tendons, des muscles, des nerfs.

[2]Considération sura la fréquence et sur la pathogenie des tares osseuses chez le mulet, Société des Sciences vétérinaire de Lyon, 1905-1906.

The regulations of the Food, Drug and Cosmetic Act apply to publishers, radio broadcast licensees and advertising agencies. The cease and desist orders can be issued against these, and fines can be imposed if the orders are violated. While the regular veterinary periodicals seldom receive deceptive advertising copy, it is well for all concerned to keep these facts in mind.

Before this greatest war of all time overtook the world, diseases of farm animals were not known to be a threat to the life of our country.

CLINICAL DATA

Equine Cancers

Of 75 epithelial tumors of horses examined at Iowa State College by Runnells and Benbrook (*Am. J. Vet. Res.*, Apr. 1942), 7 were papillomas, 54 squamous-cell carcinomas, 2 adenomas, and 10 adenocarcinomas. Thirty-five of the squamous-cell carcinomas were located on the membrana nictitans and but one of these metastasized. The majority of the malignant type occurred in horses between the ages of 7 and 12 years.

Whorled Milkweed Toxic to Turkeys

Asclepis galioides (whorled milkweed) is a common weed of the southern Intermountain region and the Southwest. According to recent investigations carried out by Geo. W. Stiles in south Colorado, young turkeys fed 1 Gm. of milkweed per 100 Gm. of live weight were sickened within an hour and died in five hours. As the author points out (*Poultry Science*, May, 1942) the eating of milkweed by turkeys on range is economically important.

Niacin (=Nicotinic Acid)

A spectacular cure of a case of Stuttgart disease in a smooth-haired terrier from a single dose of niacin is reported in *The Veterinary Record*, issue of March 14, page 115. The dog had areas of gangrene along the borders of the tongue, and the mouth emitted the characteristic odor of that ailment. He was given 50 mg. of niacin (Pelonin of the Glaxo Laboratories) intramuscularly, and the mouth was washed out with diluted formalin. Two days later when the owner was asked why he had not returned the dog for a second dose, he reported that the dog was well and needed no further treatment. The dog had just enjoyed a three-mile walk.

Gramicidin: Pattern of an Old Idea

The general impression that gramicidin, now named tyrothricin, represents a newly preconized idea needs revision to keep history in order. Positively new points of departure in medical science are counted on the fingers of one hand. Generally, what seems to be new and so heralded is but the continuation of previous work. Gramicidin is being written into the history of the 1940's, notwithstanding that Pasteur in the 1870's announced that certain bacteria, harmless to higher life, might be employed to combat specific ones that were then being caught in the act of causing specific infections (cholera, diphtheria), since soil bacteria kill one another in the eternal fight among living things. Although, at the time, nothing came of Pasteur's philosophy in that connection, the idea lived on in the doctrines of medical research. During the following forty years, Pasteur's notion on soil bacteria was proved—*in vitro*. Solutions of soil, time and again, were found to possess germ-killing power, in variable degree, obviously based upon the concentration of unknown elements. But, the particular bacteria fighting in behalf of plant life were not isolated or harnessed to fight infections of higher life until two or three years ago when Dubos of the Rockefeller Institute for Medical Research developed pure cultures and made extracts therefrom that were found to be deadly to, *e.g.*, pneumococcus type III, in extremely weak dilutions—extracts that protected mice against a million lethal doses of that microbe.

In veterinary medicine the high germ-killing power of tyrothricin was proved in cows affected with streptococcic mastitis (The Journal, March, 1941). The therapeutic value of this agent, or perhaps groups of such agents it may represent, in the practice of veterinary medicine is being worked out in the field. The results—one of the dreams of Pasteur—are promising.

The Urine and Blood in Diagnosis

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DIAGNOSIS IS BASED on data obtained from the history, physical examination, and laboratory examination of the patient. Laboratory diagnosis is a supplement, not a substitute, for the physical examination and should be so regarded. Laboratory data should be transposed into the mental picture of the pathologic, physiologic, and chemical changes which could explain them, keeping in mind all of the causes which may produce changes and their relative frequency. Observations are kept clearly separated, in record and thought, from the hypotheses formulated, since observations are more likely to be correct than the conclusions. Diagnoses are based on the preponderance of evidence obtained from all phases of the examination. Diagnoses based on history and physical examination alone may be inadequate, and when the findings of the laboratory are not compatible with them they should be rechecked. There are technical errors and normal biological variations to be considered. Near the extremes of the normal range, normal and pathologic changes often overlap, hence the need of caution.

Urine

Next to the lungs (hematosis), the kidneys are the most important excretory organs. Their secretion is a complex solution of organic and inorganic substances, most of which are either waste products of metabolism or products derived more directly from the intake of food.

The constituents of urine are divided into four groups: (1) organic, (2) inorganic, (3) pathologic, and (4) microscopic.

1). *Organic constituents* are urea, uric acid, creatine, *et al.* Urea constitutes about one-half of the organic solid normally secreted.

2). *Inorganic constituents* comprise chlorides, phosphates, sulfates, and ammonium. The chlorides, practically all in the form of NaCl, make up one-half of the total inorganic ingredients.

3). *Pathologic constituents* occur in the urine only in disease. The most important ones are proteins, sugars, acetone, bile, and hemoglobin. At times, hormones are excreted in the urine.

4). *Miscroscopic structures.*—In addition to substances in solution, urine contains various microscopic structures such as epithelial cells, pus cells, erythrocytes, casts, etc. These originate in the urinary tract.

Ordinarily, the composition of urine does not vary much from day to day but varies greatly at different hours of the same day. The time of collecting specimens is, therefore, important. For quantitative analyses only samples of mixed 24-hour urine have value. Specimens collected at random suffice, however, in making qualitative tests for albumin and sugar. Morning urine or urine passed about three hours after a meal is most likely to contain pathologic material.

QUANTITY OF URINE

The amount of urine voided varies in different species of animals. The reasons for increases in quantity are numerous. The most important are (1) drinking large quantities of water, (2) resorption of large amounts of exudates, (3) diffuse, chronic nephritis, and (4) sugar diabetes.

Increases are partly due to irritability of the bladder. Micturition reflexly stimulates the kidneys.

The reasons for decreases in quantity are (1) violent exercise; (2) warm surroundings; (3) acute febrile diseases; (4)

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anemia, atrophy of the liver, and cardiac disease; (5) loss of large quantity of fluids (hemorrhage, diarrhea); (6) surgical shock which may diminish or even wholly suppress renal secretion. Here unsuspected nephritis may be a factor.

COLOR OF URINE

The color of urine depends upon normal or abnormal pigments. The normal pigments are yellow with a small amount of red that influences the color when highly concentrated.

Paleness is normal when urine is highly diluted and has a low specific gravity, but is abnormal in chronic nephritis when the secretion is greatly increased or in diabetes mellitus where it is high.

Dark colored urine is usually concentrated or due to fever with excess of urobilin.

Color may be divided into pale yellow, yellow, yellow amber, red amber, amber, and dark amber. Abnormal urine may be discolored with blood (red, brown, black, depending upon the source); with bile (yellow to brownish-green); or with pus (creamy). Certain drugs also will color urine.

OPACITY

Normal urine is clear but becomes faintly cloudy after standing several hours. Usually, the cloudiness collects in the middle of the column of the specimen. It is due to threads of mucus from the urinary tract, small granular cells, leucocytes, and surface epithelium from the bladder and urethra. Pathologic urine is clouded by the presence of bacteria, by pus cells in cystitis, by epithelium and casts in nephritis, or by blood from hemorrhages along the urinogenital tract.

SPECIFIC GRAVITY

Specific gravity of urine expresses the total quantity of solids or their degree of concentration in relation to that of distilled water (at 4 C.). Taken at random and regardless of meals, exercise, fluid recently consumed, or amount passed daily, it must be interpreted with care. In general, high specific gravity indicates the concentration, while low specific gravity indicates dilution. For the total daily output the normal ratio of specific gravity and quantity varies inversely.

Pathologically low specific gravity is found in chronic nephritis, diabetes insipidus and many functional nervous disorders. A sudden fall of specific gravity in any form of nephritis, not accompanied by a corresponding increase in the quantity secreted, forecasts the onset of uremia. High specific gravity is found in diabetes mellitus.

THE REACTION OF URINE

The reaction of urine depends on the diet. From this standpoint there are three groups: (1) the acid urine of carnivora; (2) the alkaline urine of herbivora, and (3) mixed (acid, alkaline, neutral) urine of omnivora.

Urine normally acid may become alkaline from (1) change of diet toward fruits and vegetables; (2) serum buffers pouring into the urine; (3) ammoniacal decomposition; and (4) alkaline drugs.

Urine normally alkaline may become acid from (1) starvation; (2) acute metabolic disturbances (infections, fever); and (3) inorganic acid medication.

ALBUMIN

The presence of albumin is probably the most important pathological condition of the urine and also the most frequent. It may be grouped into either accidental or renal.

Accidental or false albuminuria is due to a mixture of the urine with albuminous fluids, such as pus, blood, vaginal discharge and epithelial cells. The microscopic examination will usually reveal its nature. Its origin is injury outside of the renal tissue, such as inflammatory degenerative changes in the urethra, bladder, ureter, and other organs. It occurs most frequently in pyelitis, cystitis, and vaginitis. The quantity of albumin is usually small.

Renal albuminuria refers to albumin which has passed from the blood into the urine through the walls of the renal tubules (glomeruli). It may be divided into the following groups:

1). *Physiologic albuminuria.*—Albuminuria sufficient to be recognized by the

ordinary clinical methods probably never occurs physiologically. It appears under conditions which must be regarded as abnormal. The most common causes are: (1) excessive muscular exertion by animals unaccustomed to it; (2) dietetic albuminuria following the ingestion of excessive quantities of easily absorbable proteins, sometimes favored by intestinal disorders; and (3) the later stages of pregnancy.

2). *Circulatory changes in the kidneys.*—These changes occur in anemia or in congestion of the kidneys and they are caused by excessive exercise, chronic heart disease, or severe general anemia. In all these events there is a circulatory stasis in the renal tissue which if continued will lead to a degenerative change therein.

3). *Irritation of the kidneys.*—Here, there is slight damage to the glomerular tissue (cloudy swelling) by irritants, but without definite nephritis. This form may be caused by toxins of acute infections and febrile diseases, and irritating drugs such as arsenic, lead, mercury, ether, cantharides, mustard, turpentine, and some of the sulfanilamide derivatives.

4). *Nephritis.*—This includes the inflammatory and degenerative changes in the kidneys, the result of prolonged kidney irritation.

SUGAR

Glucose is found in normal urine only in traces too small to be detected by the usual tests. Abnormally, sugar may appear in detectable amounts as a result of either low renal threshold or high blood-sugar level, or both. Glycosuria may be divided into the following:

1). *Transitory glycosuria.*—Sugar may appear in the urine under certain conditions which may be looked upon as physiologic. It is generally slight and may occur in many conditions: after general anesthesia, vigorous muscular exertion, certain drugs, shock, head injuries, excitement and fear. Many dogs show glycosuria on the first day in the hospital, but after sufficient time has elapsed for them to become accustomed to their new environment they become negative.

2). *Alimentary glycosuria.*—This occurs after excessive carbohydrate ingestion. A dog on a diet high in starchy foods tends to develop various ailments and in many cases glycosuria is revealed upon urinalysis.

3). *Persistent glycosuria.*—This is a very general classification and may be divided further:

(1) *Neurogenic glycosuria:* Although not necessarily continuous, glycosuria has been noted in brain injuries involving the floor of the fourth ventricle. In these cases where the glycosuria is persistent, the prognosis is usually unfavorable.

(2) *Renal glycosuria:* In this condition the glycosuria is persistent and is due to a low renal threshold for dextrose. The condition is not as serious as diabetes mellitus since the ability to oxidize dextrose is not impaired.

(3) *Diabetes mellitus:* Authorities differ as to whether the dog is subject to this condition as seen in man. It is caused by a deficiency of insulin. There have been several cases in the clinic with a persistent form of glycosuria to which no other cause could be ascribed. They show the typical symptoms (emaciation, unthriftiness, polyuria and urine acetone).

KETONES

The acetone bodies are produced by the combustion of fats and to a certain extent by that of some of the amino acids. For the completion of this process the presence of carbohydrates is necessary, since, without a proportional amount of glucose, fats are only partially oxidized. Interruption occurs at the aceto-acetic acid stage, instead of proceeding to final decomposition into carbon dioxide and water. The accumulated ketones are excreted in the urine, some in the form of beta hydroxybutyric acid, some as diacetic acid and some as acetone. All three of these have essentially the same significance. Causes for acetone bodies in urine are as follows:

1). *Deficient carbohydrate.*—Here, there is (1) not enough carbohydrate in the diet, or (2) complete starvation. The glycogen reserve is soon exhausted and the proteins and fats are oxidized. (3) Gastrointestinal disorders—as in severe diarrhea, vomiting, or malnutrition.

2). *Excessive metabolism* of fats and proteins.

3). *Ether and chloroform anesthesia.*

4). *Diabetes mellitus:* Ketones may be present even with ample carbohydrate intake since there is inability to oxidize dextrose.

INDICAN

Indican is a product of protein putrefaction, chiefly in the intestinal tract. The putrefaction causes the formation of indol and skatol. The indol is connected to indoxyl and is joined in the liver with sulfuric acid to form indican which is eliminated by the kidneys. This is a good example of the detoxifying power of the body. Highly toxic indol is converted to the less toxic substance, indican. The causes for indicanuria are:

1). *Diseases of the small intestine.*—This is by far the most common source. Intestinal obstruction gives the largest amounts of indican. Special causes are catarrhal inflammation, impaction, volvulus, and intussusception.

2). *Excess of proteins in the diet.*—There is incomplete normal digestion and the residue putrefies.

3). *Disease of the stomach.*—Indicanuria is associated with achlorhydria as in gastritis. Diminished hydrochloric acid in the stomach favors intestinal putrefaction.

4). *Diminished flow of bile.*—Since bile stimulates peristalsis and retards putrefaction, diminished flow favors the occurrence of indicanuria.

5). *Decomposition of exudates* anywhere in the body such as the purulent foci of peritonitis, pneumonia, and pleurisy are causes of urine indican. Here, the cause is tissue protein, not food protein.

BILE

Bile in the urine has the same significance as bile-stained tissues (jaundice). It can be detected in the urine before it is visible in the mucous membranes. Its presence indicates increased elimination of bile pigment by the urine but does not distinguish the three etiologic forms from one another, namely:

1). *Hematogenous icterus,* representing an accelerated rate of red cell destruction from any cause as in anaplasmosis, piroplasmosis, malaria or any diseases characterized by chronic hemolysis.

2). *Obstructive icterus* caused by interruption to the flow of bile from the liver by foreign bodies, swelling of the bile ducts, parasites, congestion of the duodenal mucosa, etc.

3). *Destruction of hepatic cells,* seen in acute atrophy of the liver and phosphorus poisoning.

BLOOD

Blood may occur in the urine in two conditions: hemoglobinuria or hematuria.

Hemoglobinuria is the presence in the urine of hemoglobin unassociated with red cells. It occurs when there is such extensive destruction of red cells that the liver can not transform all the hemoglobin set free into bile pigment. The urine is usually clear and transparent, unless other conditions interfere. Albumin and casts are usually associated. It is a comparatively rare condition.

Hematuria is the presence of free red corpuscles in the urine. It is distinguished from hemoglobinuria by microscopic examination which reveals the presence of numerous erythrocytes. Blood only at the beginning of urination suggests the urethra as the source. If only at the end of urination, the source is the bladder; but when evenly mixed, the source is the kidneys. If the red cells are embedded in casts, a renal source is certain and if they are altered, crenated or swollen and partly hemolyzed, renal origin is probable but not positive. In appearance the urine is usually opaque with a tendency towards sedimentation of the heavy suspension and the color depends on the source of the blood.

MICROSCOPIC EXAMINATION

A careful microscopic study should be made in all urine examinations. It will often reveal components of diagnostic importance. Skill in identifying the various objects found in the urine can be attained by practice. Urinary sediments may be grouped into three types. (1) organized sediments, (2) unorganized sediments, and (3) extraneous matter.

1). *Organized sediments.*—Organized sediments are the most important of

urinary structures. The principal structures are:

(a) Tube casts—These casts are molds of the uriniferous tubules. The substances from which casts are formed may be products from the blood, pathological secretion of renal cells, or a product of epithelial degeneration. Their presence probably always indicates pathologic changes in the kidneys, especially if accompanied by albuminuria.

2). *Unorganized sediments.*—Unorganized sediments have little diagnostic significance. Most of them are substances which are normally present in the urine. They have been precipitated either because they are present in excessive amounts or because of some alteration in the urine such as concentration or reaction. These sediments are classified as to the reaction:

(a) An acid urine—uric acid, amorphous urates, sodium urate, calcium oxalate, tygosine, lencine, cystine and fat globules.

(b) An alkaline urine—phosphates, calcium carbonate and ammonium binuate, etc.

3). *Extraneous matter* is composed of material of accidental contamination such as yeast cells, mold, fungi, hair, oil droplets, fat droplets, etc.

Blood

Blood is a complex fluid tissue but only a small portion of the cellular elements will be considered, here.

ERYTHROCYTES OR RED CELLS

There is a great variation in the size, shape, number and structure of the red cells in the different species. They are similar only in providing the means of transporting hemoglobin in the most feasible way, that is, by exposing the greatest possible surface for absorption of oxygen.

Red blood-cell formation in the adult is confined to the bone marrow of the vertebrae, ribs, sternum, flat bones and proximal ends of the long bones. The nucleus of the immature red blood cell is responsible for the hemoglobin content of the mature cell. The normal mature red cell in circulation contains no nucleus. Therefore, the hemoglobin content of the adult cell can not be changed. A solution of iron injected into the bloom stream does not affect the amount of hemoglobin in the red blood corpuscles which are present in the circulation at that time. The only cells affected are those in the process of manufacture in the bone marrow.

A red blood cell count is the enumeration of the total erythrocytes per cmm. regardless of size and hemoglobin content. There are a number of causes of temporary changes in the red cell count which are classed as physiological variations. They are (1) temperature which is apt to be higher in winter than in summer; (2) strenuous exercise for a short period, starvation, massage, and fright; and (3) excessive use of drastic purges. The latter have a perceptible effect upon the red cell count because they concentrate the blood through loss of volume.

Causes for increased red cell count. The essential feature of this condition is the increase above normal values caused by (1) the physiologic factors mentioned above (diarrhea, dehydration, prolonged abstinence from fluids); (2) pregnancy; (3) prolonged anesthesia; (4) newborn animals (high but drops later); (5) burns (result of disturbance of arterial tension); (6) certain poisons (CO_2 and phosphorus), gum shellac, and various aniline dyes; and (7) insufficient aeration of blood due to extensive pulmonary fibrosis, tuberculosis, emphysema, atelectasia, pneumothorax.

The causes of decreased red cell count are (1) loss of blood (hemorrhage or hemorrhagic diseases); (2) blood destruction (anaplasmosis and piroplasmosis); and (3) anemia.

HEMOGLOBIN

The estimation of the hemoglobin gives the amount of hemoglobin per 100 cc. of blood regardless of the red count. Increase of hemoglobin (hyperchromemia) is uncommon, and is usually more apparent than real. It accompanies an increase in the number of erythrocytes and may be found in poorly compensated heart disease with cyanosis and in the concentration of the blood from any cause such as severe diarrhea and dehydration.

Decrease of hemoglobin (oligochromemia) is common and important. It is distinctive

and the most striking feature of the anemias. In secondary anemia, the hemoglobin loss may be slight or great. In mild cases, a slight decrease of hemoglobin is the only blood change found.

The main conditions which produce secondary (symptomatic) anemia are as follows. In many clinical cases two or more of these may coexist: (1) the poor nutrition which usually accompanies insanitary conditions and poor and insufficient food; (2) the acute infectious diseases —often more conspicuous during convalescence; (3) chronic infectious diseases or chronic suppuration; (4) chronic exhausting diseases such as chronic nephritis, cirrhosis of the liver and gastrointestinal diseases; (5) chronic poisoning (lead, arsenic, phosphorus); and (6) hemorrhage, parasites, *et al.*

Although the blood changes vary somewhat with the cause, in general, the picture is much the same. Diminution of hemoglobin is the constant and most characteristic feature. The physical examination determines the cause. The number of leucocytes bears no direct relation to the anemia. Polymorphonuclear leucocytes are common and are due to the same cause as the anemia. There is one test that will classify the anemia into primary or secondary. It is the color index which indicates the amount of hemoglobin in each red corpuscle compared with the normal amount. A color index of 0.6:1 indicates that each corpuscle contains the normal amount of hemoglobin. If the result is 1 or above, which means each corpuscle is loaded with hemoglobin, it is primary anemia. If it is below 0.6, which means the amount of hemoglobin in each corpuscle is low, it is secondary anemia. In primary anemia, the trouble is in the bone marrow, while in secondary anemia, the cause is some influence that is depressing the hematopoiesis in the bone marrow.

LEUCOCYTES OR WHITE BLOOD CELLS

Leucocytes are found in approximately the same differential proportion in all species of animals and this proportion is relatively constant in health. This seems to imply that these cells and their relatively quantitative values in the blood stream are fundamental in the somatic physiology. Yet, there is no accepted evidence for what might be termed the normal physiology for these billions of circulating cells. The part played by some of them in pathologic processes is evident, but it would be presumptuous to say that they have only pathologic functions since the source of many blood-plasma constituents is not known.

Howell lists the following functions of the leucocytes: (1) They protect the body from pathogenic bacteria and other cells and organisms. (2) They take part in the process of absorption and growth and are connected with tissue repair and regeneration. (3) They aid absorption in the intestine. (4) They take part in the process of blood coagulation. (5) And they help to maintain the normal protein composition of the plasma.

The leucocytes are the main defensive cells, after the first line of defense against invading organisms afforded by the skin and mucous membranes has been surmounted. There is, however, at present, suggestive evidence that they aid in preventing bacterial invasion and thus fulfill a function in health. With a pathologic state established by the invasion of pathogenic organisms, the secondary defense, furnished by leucocytes and blood serum, is mobilized through the instrumentality of the inflammatory process.

The following table summarizes the functions of the different types of white blood cells:

CELL	ORIGIN	FUNCTIONS
Granulocytes		
a. neutrophiles	bone marrow	Phagocytic, especially against bacteria
b. eosinophiles	bone marrow	Rarely phagocytic; combat animal parasites; destroy foreign proteins
c. basophiles	bone marrow	Unknown
Lymphocytes	lymphatics	Not phagocytic; believed to combat chronic infections; stimulate connective tissue growth; may produce antitoxins
Monocytes	reticulo-endothelial system	Destroy red and white blood corpuscles, and some bacteria; combat chronic infections

CURRENT LITERATURE

ABSTRACTS

Leucemia and Bovine Lymphocytoma

Observations indicate that probably the most common neoplastic process of animals, and especially of cattle, involves the blood and blood-forming organs. Lymphocytoma, which involves primarily an enormous hyperplasia of the lymphoid tissue, is encountered in the greatest proportion of cases. Such gross and microscopic changes of the lymphoid tissues, in which all of the normal architecture is thoroughly masked, are usually associated with massive infiltrative invasions of various organs by the lymphoid cells. The wall of the abomasum, the heart, liver, and kidney are common sites for such predilection. While the spleen in lymphocytoma usually shows little enlargement, it may be enormously enlarged in myelocytoma. Gross pathological lesions, verified by microscopic examination, revealed that myelocytomatosis seems to be of relatively rare occurrence in domestic animals.

In many cases, this neoplastic involvement of the lymphatic tissues is further associated with a leucemia. Udall suggests that leucemia of cattle is rare. Studies at this laboratory, however, have shown that a leucemia of immature lymphocytes is rather common. One reason for the failure to observe this condition more frequently is that we too rarely have the opportunity for detailed study of these cases over a period of time. They are seen on the killing floor, at autopsy, or on an occasional call. But such observations are too casual. The experience at this laboratory, however, has shown that a total white cell count and a differential leucocytic count in cases of obscure bovine ailments will usually aid in making the diagnosis. [*Thompson, W.W., D.V.M., and Roderick, Lee M., D.V.M., Division of Veterinary Medicine, Kansas State College: The Relation of Leucemia and Bovine Lymphocytoma, Am. J. Vet. Res., iii (Apr. 1942), pp. 159-165.*]

The American Farm and Farmer

Ever since Hitler quit house painting and went into politics many things on which we live have been threatened with scarcity, but the farms and the farmers have always come to the rescue. They can produce rubber, gasolene and the substitutes for aluminum now going into the construction of air planes. War alcohol, explosives, woolen uniforms and gunstocks are being made from farm products formerly wasted or used only for food. American farmers are breaking bottlenecks of production by the dozens including guayule, the bushy, little plant that can take up the slack on rubber caused by the fall of the Dutch East Indies to the Japs. Plans are on foot to seed 75,000 acres to guayule once thought to have but nuisance value. Besides, rubber can be made from corn, skim milk and dandelions. But the greatest pinch-hitter on the farmer's team is probably soy beans, which are doing a magnificent job in war material production: gunstocks, plastics, fats and oils, truck parts, synthetic fabric and many substitutes for food and for aluminum. A New England factory is turning out more than 5 million pounds of synthetic wool (aralac) a year from casein. Fifty pints of a waste product—skim milk—will make a suit of clothes, not to mention glue, paint, paper coating, rubber, fats, sugar, ivory, and many other articles. An Iowa factory is converting forty tons of corncobs a day into explosives, rubber and gums, and another was making paper from cornstalks but had to close until economical means of collecting the material could be developed. The possibilities of converting our farm products into necessities of foreign origin are immense but, unfortunately, there is no assurance that the new processes will stand up under the test of industrial economy when things cool down. [*Holman, Ross L.: Test Tubes to Victory, The American Legion Magazine, xxxii (May, 1942), pp. 16-17, and 40-42.*]

The Viruses of Influenza

Clinical similarities between influenza of man and horses suggested the need for serologic comparison of the two diseases. Viruses of influenza A (PR-8, Melbourne, and WS strains), of influenza B (TM strain), and of swine influenza (Shope's strain 15) were tested against preinfection and convalescent serums from cases of equine influenza. No significant increase in neutralizing antibodies for these viruses was found. [*Jones, T. C. and Maurer, Fred D. (Veterinary Res. Lab., Front Royal, Va.): Neutralization Studies of the Viruses of Influenza A, Influenza B and Swine Influenza with Equine Influenza Convalescent Serums. Am. J. Vet. Res., iii (Apr. 1942), pp. 179-182.*]

Aujeszky's Disease (=Mad Itch) in Two Dogs

A Collie bitch and a Collie dog, in apparently good health in the evening were sick in the morning, scatching at their mouths and rubbing against objects with increasing intensity. Their mouths and lips were swollen and they were thirsty. The dog died in the evening and the bitch the next day. *Post mortem*, the carcasses exhibited the edematous lips and buccal mucosae, contusions and lacerations oozing a serosanguinous exudation. Skin and hair were rubbed off in patches around the eyes and ears.

The brains were removed and material from the cerebral hemispheres, horns of Ammon and medulla oblongata was injected into two rabbits. Aujeszky's disease developed in 50 and 50½ hours respectively, and was positive when passed through a second series of rabbits.

The two dogs had killed and pulled a rat in two. None of the other animals on the farm contracted the disease. The authors pronounced this the first record of Aujeszky's disease in dogs in Great Britain. [*Cassel, R. W. and Lamont, H. G., Veterinary Research Division, Stormont, Belfast. Aujeszky's Disease in Dogs. The Veterinary Record, liv (Jan. 10, 1942), p. 21.*]

Intertransmissibility of Cattle and Sheep Helminths

Controlled experiments directed by the Animal Health Station in Queensland, Australia, establish vital facts as to the host specificity of helminths known to infect both cattle and sheep. *Haemonchus contortus, Oesophagostomum columbianum, Trichostrongylus colubriformis, Dictyocaulus filaria,* and *Moniezia expansa* are the most important helminths of sheep. Of these, the authors did not find *O. columbianum* or *D. filaria* in cattle.

The most prevalent species in cattle are *H. contortus, Bunostomum phlebotomum, Boscicola radiatum, Cooperia punctata, C. pectinata, Trichostrongylus axei, Ostertagia ostertagi, Dictyocaulus viviparus,* and *Moniezia benedeni.* Of these *B. phlebotomum, B. radiatum* and *D. viviparus,* were never seen in sheep. *C. pectinata, C. punctata and O. ostertagi* were found only in sheep which had grazed on cattle pastures, and they are of little importance in sheep.

In short, the transfer of these parasites from sheep to cattle and *vice versa* is controversial among parasitologists. (Hall, Tetley, Mönnig, Stoll, Ross, Taylor, Bray.)

The importance of the study lies in establishing facts in regard to rotating pastures between cattle and sheep as a control measure.

Numerous species of helminths in sheep-contaminated pastures were transferred to calves, while other species appeared not to infect calves. Calves were found to resist *H. contortus* of sheep (except for a transient infection) after grazing for six weeks on a heavily contaminated pasture. Quoting: "From the point of view of using cattle to control sheep helminths, *H. contortus* and *T. colubriformis* are the principal species to be considered. Cattle could be used to advantage to cleanse sheep pastures of *T. colubriformis* provided the animals were permitted to remain on the pasture for some months. In the case of *H. contortus*, however, the procedure would be dangerous because (a) a low grade of infection would be set up in young cattle exposed to that parasite from sheep, (b) sheep are readily susceptible to larvae from sheep after passage through cattle, and (c) sheep may be easily infected with larvae of a pure cattle strain. The sheep strain may gradually adapt itself to cattle." [*Roberts, F.H.S., D.Sc.: The Host Specificity of Sheep and Cattle Helminths with Particular Reference to the Use of Cattle in Cleansing Sheep Pastures, Australian Veterinary Journal, xviii (Feb., 1942), pp. 19-27.*]

Why I Farm with Horses

"To attack the subject about as we used to prepare a debate in our old high school literary society," the author turned to the Horse and Mule Association of America and the agricultural experiment stations for data, but found that information from such sources does not contain all the reasons for farming with horses. The usual statistical material is not invoked since the preference is based, to some extent, on personal devotion to the horse. But, inasmuch as the essayist is a born farmer (fourth generation) and farms 850 acres along the Rush-Decatur county line (Indiana), the financial advantage is not ruled out. The livestock of this farm comprises 35 Percherons, 50 to 60 brood sows, 20 to 25 milking Shorthorns, and 60 to 80 steers. The crops are corn, oats, wheat, barley, rye, alfalfa and soy beans. "Though we are not too old-fashioned to have a tractor," its main use is for belt work and to help out in plowing and discing. When, owing to wet ground, not another combine or corn picker can be used in the neighborhood, the harvesting of soy beans and corn goes on uninterrupted.

In short, the author's liking for horses is secondary to the need of making a living. "Unless horses help us to do that, we would not keep them," the author emphasizes. To move all of the feed and manure that is handled on the four units of the farm, would require a too great investment and there would be too much depreciation. Moreover, there would be many weeks when there could be no work done on moist ground and no other work for the men to do. If tractor farming is done with less help, there are times when extra help must be hired,

and that is at times when help is not easy to procure.

The author also points out that by farming with horses, horse breeding becomes more or less a sideline—a sideline that grows farm power. The effort of implement makers, farm management experts, finance companies, etc., to discredit the usefulness of horses is not well founded. Bankers know that horses represent a more liquid asset than tractors and the Farm Security Administration has almost universally refused to loan money to a client to buy a tractor. In effect, the article points out that it is from the endless list of details of farming not in statistics that the question of farm power must be answered. [*Beall, Frank C., Carmel, Ind.: Why I Farm with Horses, Breeders Gazette (May-June, 1942), pp. 19-20.*]

Promin*—Chemotherapy in Tuberculosis

Basing themselves on the therapeutic value of certain drugs in combating a variety of infectious diseases, the authors tested the action of promin against experimental tuberculous infection in guinea pigs. The results were gratifying in animals treated before and after the experimental inoculations. All of the untreated animals were dead in six months while only 16 per cent of the 20 animals treated two days before inoculation were dead at that time, 84 per cent survived, and demonstrable lesions of tuberculosis in the liver, spleen and lungs were absent in 57 per cent of them. No lesions were present in the other visceral organs, the adjacent lymph nodes or site of inoculation in 37 per cent of the treated cases. *(Feldman, William H., Hinshaw, H. C., and Moses, Harold E.: Promin in Experimental Tuberculosis, The American Review of Tuberculosis, xlv (March, 1942), pp. 303-333.)*

Australian Research Council

A close contact between science and government such as exists in Britain and the United States was proposed by the Australian National Research Council in 1940. While the proposal was at first disapproved in the form submitted, the movement led to contacts, theretofore lacking, with various governmental departments engaged in civilian and military pursuit: the adjutant general, the army medical service, controller of materials, medical equipment, industrial chemicals, munitions production, *et al.* Much was thereby accomplished by scientists in universities and elsewhere. [*Scientific Notes and News, Science, xcv (March 13, 1942), pp. 279-280.*]

*Proprietary name of sodium P, P^1—diaminodiphenyl—N, N^1—didextrose sulfonate.

Feeding in the Etiology of Chronic Mastitis

A study was made of 26 animals to determine the effect of heavy corn feeding as a contributory factor in the development of mastitis, and 16 animals to determine the effect of rate of feeding the grain ration.

To detect the presence of mastitis the following tests were conducted at intervals of two weeks: (1) physical examination, (2) strip cup, (3) brom-thymol blue, (4) chlorine (colorimetric), (5) Hotis test, (6) leucocyte count, (7) microscopic examination and (8) blood-agar plates. Once each month the milk was collected for making chlorine (titration), lactose and pH determinations.

No appreciable difference was noted in the incidence or severity of mastitis between the experimental and control lots. Physical, biological and chemical tests demonstrated wide variation in the severity of mastitis among individuals, but not between the two groups.

No appreciable increase in the incidence or severity of mastitis was observed as a result of the kind of ration or the rate of grain feeding under the conditions of these experiments. [*Moore, Earl N., Van Landingham, A. H., Weakley, C. E., Jr., and Henderson, H. O., West Virginia Agricultural Experiment Station: Feeding as a Contributory Factor in the Development of Chronic Mastitis, Am. J. Vet. Res., iii (Apr. 1942), pp. 154-158.*]

Sulfaguanidine in Swine Enteritis

A previous report covered the dosage of sulfaguanidine in sheep and swine rather than its actual therapeutic action, while the present one describes the results of its use in the treatment of three droves of swine affected with enteritis of the usual types, *i.e.* microbic enteritis (in some cases *Salmonella suipestifer* infection), manifested by incoördinate locomotion, posterior weakness, anoraxia, depression and dysentery. Though *S. suipestifer* is commonly regarded as the specific agent of swine enteritis, it is obviously a secondary agent, the primary cause appearing to be a nutritional deficit. This being the case, the handling of this grave disease should be preventive rather than curative, since victims are too badly damaged to retrieve their value as feeders.

This study established the dose of sulfaguanidine in hogs at 1 Gm. per each 20 lb. of body weight four times a day and twice that amount for severe cases. Lowering the feed intake is essential. Because treated cases relapse 6 to 8 days after the drug is discontinued and recover again when resumed, the minimum dose should be continued for several days after the apparent recovery. [*Cameron, H. S. Field Investigation on Sulfaguanidine in Swine Enteritis. Cornell Veterinarian, xxxii (Jan. 1942), pp. 1-10.*]

Sulfaguanidine in Calf Scours

The treatment of 40 calves suffering from "scours" with sulfaguanidine gave promising results. Age did not affect the response to the action of the drug as does sulfapyridine in calf pneumonia. Calves weighing 75 lb. received 0.15 to 0.17 Gm. (= 2.25 to 2.55 gr.) per lb. of body weight every day, divided into three doses given morning, noon and night. For lighter calves the dose was reduced proportionately (0.13 Gm. per lb.) and on the third day not over 0.6 Gm. was given. Overdosing caused severe damage to the kidneys. It is important to determine the tolerance more definitely and also its effects on the intestinal flora. Of the 40 calves treated, 39 recovered. [*Thorp, W.T.S., and Shigley, J. F.: Sulfaguanidine Therapy in Calf Scours, Vet. Med. xxxvii (May, 1942), pp. 210-213.*]

Psittacosis Contracted from a Pigeon

A case of psittacosis was contracted from a pigeon by a New York City policeman, 35 years old. The pigeon was incriminated because the victim was not exposed to any other bird. The incident warrants consideration of pigeons as possible sources of the infection. The patient suffered from the "grippy" symptoms of that malady (chill, fever, chest pains, slight cough, cyanosis, and expectoration of blood-stained sputum), and was negative to tests for typhoid, paratyphoid A and B, brucellosis, and typhus. The clinical circumstances and failure to respond to sulfonamide derivatives led to a tentative diagnosis of psittacosis. A specimen of the patient's serum was dispatched to Dr. Karl Meyer of the Hooper Foundation in San Francisco who reported a strong positive, 4-plus reaction for psittacosis. [*Allicandri, Henry, M.D., Brooklyn: Psittacosis, J.A.M.A. cxviii (April 4, 1942), p. 1214.*]

Canine Leptospirosis—Weil's Disease

The disease has been known to exist in this state (Queensland) as an occupational disease of workers in the sugar-cane fields and sewers. In other parts of the world it exists among soldiers, fish handlers and miners. Persons exposed to water that is contaminated with rat urine are the common victims of Weil's disease. However, of the four species of Leptospira affecting man, *L. icterohaemorrhagiae*, *australis A*, *australis B*, and *canicola*, the latter is rarely found in rats, presumably indicating that the canine infection is not essentially rat-borne and that man infected with *L. canicola* contracts the disease from dogs. That is, canine leptospirosis is generally transmitted from dog to dog and dog to man, independent of rodents. [Meyer, Stewart-Anderson and Eddie (*J.A.V.M.A.*, Dec. 1939), however, found that 8 per cent of canine cases were due to the strain of the organism commonly found in man—*L. icterohaemorrhagiae.*] In this investigation the authors conclude that the infecting organism in dogs was *L. icterohaemorrhagiae*, which is the cause of the classical Weil's disease of the human being. [*Gray, D.F., B.V.Sc.: Canine Leprospiral Jaundice in Queensland, Australian Veterinary Journal, xviii (Feb. 1942), pp. 2-13.*]

Human and Equine Encephalomyelitis

Concurrent with a high incidence of encephalomyelitis among horses in Manitoba, Saskatchewan and Alberta during the summer and fall of 1941, there was an outbreak of infantile paralysis in Alberta. Local health boards of Alberta reported 42 cases as encephalomyelitis, of which the Provincial Health Department found that 19 out of 28 specimens were positive for the western type of the equine infection, 8 negative and 1 doubtful. In addition, out of 18 cases not reported as encephalomyelitis, there were 8 positive, 8 negative, and 2 doubtful for the equine virus as determined by the usual laboratory methods of differentiation. [*McGugan, A.C., M.D.: Equine Encephalomyelitis (Western Type) in Humans in Alberta, 1941, Canadian Public Health Journal, xxxiii (Apr. 1942, pp. 148-151.*]

Fasting as a Teniafuge in Fowls

Tapeworms difficult to remove with anthelmintics have been found to yield to short periods of fasting, although fasting is not necessarily the sole treatment needed. It is thought, however, that the period of fasting preceding medication is a factor in the "starvation phenomenon" newly discovered as a fowl-tapeworm remedy, it having been shown that a large portion of the strobilae (adult worms) are removed (in fowls) during a short period of fasting. But inasmuch as the scoleces (head and neck) survive and fasting, like medication, only breaks the life cycle, the so-called "starvation treatment" can not be recommended. The longevity of both the larval and adult stages makes that treatment impractical. [*Reid, W. M., Kansas State College: The Removal of the Fowl Tapeworm Raillietina cesticillus by Short Periods of Starvation, Poultry Science, xxi (May, 1942), pp. 220-229.*]

Corn Insects of Puerto Rico

The Bureau of Entomology and Plant Quarantine, USDA, studied the insects attacking growing corn in Puerto Rico during August of 1935 and 1936. Four species were found to have prime economic importance: corn leafhopper (*Peregrinis maidis*, Ashmead), ortiid fly (*Euzesta stigmatias*, Leow), fall army

worm (*Laphygma frugiperda*, A. and S.), and the corn earworm (*Heliothis armigera*, Hbn.).

Studies were made in respect to the damage each of these insects does and control measures to be employed. Among the measures tried were the insecticides arsenate of lead, dusting sulfur, derris, barium fluosilicate, and arsenate of magnesium, together with mechanical means (hog rings, paper caps, wires, strings, etc.), all of which gave promising results. [*App, Barnard A. Bureau of Entomology, USDA: A Report on Some Investigations on the Corn Insects of Puerto Rico, Journal of Agriculture, University of Puerto Rico, xxv (Oct., 1941), pp. 21-31.*]

BOOK NOTICES

Bang's Disease of Cattle

This brochure is a summation of previously published opinions on the control of bovine brucellosis, briefly covering the subject in the form of quoted text material and conclusions expressed by prominent figures in that field of livestock sanitary science.

The author succeeds in furnishing a handy manual on a disease-control problem which flooded the literature during the years of search for knowledge on its scientific and economic aspects. In effect, the book is hostile to the test and slaughter plan, especially under compulsion, and leans without reservation to calfhood vaccination by qualified veterinarians. It's the logical plan of controlling the disease, the author emphasizes. [*Bang's Disease of Cattle, by George H. Conn, D.V.M., B.S.A.H. The Fred Hahne Printing Company, Webster City, Iowa, 1941. 113 pages. Cloth. Price $1.00.*]

Annual Report of the University of Tennessee

In the fifty-third annual report of the University of Tennessee, Agricultural Experiment Station, M. Jacob, who is head of the department of animal husbandry, and longtime treasurer of the American Veterinary Medical Association, gives an account of the experimental feeding and breeding of cattle, sheep, swine, jacks, mules and horses (Walking) carried out at the station under his directorship in recent years. Numerous illustrations of these farm animals and tabulated material are used in documenting that phase of Tennessee agriculture. A brief mention is made of brucellosis control in cattle.

In 17 observations the period of gestation of jennets was found to range from 340 to 393 days (average 367.8 days), and the estrous cycles from 17 to 28 days (average 22.5 days). In mares, the estrous cycle varied from 18 to 28 days (average 23.5 days). The Cuboni test for pregnancy made on 22 jennets at an average of 167.9 days after service was found to be 95.3 per cent accurate. Artificial insemination was an important part of the study. [*Fifty-Third Annual Report, University of Tennessee, Agricultural Experiment Station (1940) by President James D. Hoskins and staff, Knoxville, Tenn. 110 pages. 1941. Paper. Profusely illustrated.*]

Poultry Improvement Plan Conference

The National Poultry Improvement Plan conference held in Chicago last June has issued a 175 page multigram, letterhead size, obviously expressing the poultrymen's idea on the use of poultry science in promoting (improving) their branch of animal production in the United States. According to the report, genetics, pullorum disease and commercial troubles circumscribe the problems involved. While within the legitimate veterinary circle a candid effort is being made to encourage practitioners to enter the field of poultry medicine and a great deal of space is given over to that branch of practice in the profession's publications, the poultry industry as represented at this conference was silent on the proffered coöperation. On the contrary, it made much ado over training schools for pullorum-testing agents, which seems to leave the doctors of veterinary medicine in the position of uninvited guests or in the seclusion of their laboratories working in behalf of the quick-made poultry physicians. On the espousal of poultryman and veterinarian, the Committee on Education and Public Relations of this "billion dollar" industry saith naught. Otherwise stated, the practitioners are being told (by us) to "come in—the water is fine" before the arrival of an official invitation, granted that the conference is the official spokesman and greeter. Either the veterinary practitioner is not wanted or else the veterinary profession is not known to exist. In either case, the results are the same for the time being. Disease will go on taking its unparalleled cut which no animal-breeding industry can stand indefinitely, and for which poultry production is notorious. Obviously, there were "no hands across the sea" extended to the American veterinarians at the conference, notwithstanding that without the knowledge they possess there wouldn't be much of a poultry industry to improve.

This is no brief against the excellent papers read by outstanding veterinarians on hygiene and pullorum testing. It's a plea for better use of scientific knowledge by the poultry-producers which only the trained doctors of veterinary medicine can supply. While the quick-trained pullorum-testing agents may appease the hatcherymen, the type of medicine they represent will never appease the diseases which rob the poultryman's pocket book. [*Report of the Conference on National Poultry Improvement Plan by the Animal Husbandry Division, Bureau of Animal Industry, United States Department of Agriculture. Multigram. 175 pages.*]

Summary of tuberculosis eradication in coöperation with the various states, Bureau of Animal Industry, United States Department of Agriculture, December, 1941.

Summary of tuberculosis eradication in coöperation with the various states, Bureau of Animal Industry, United States Department of Agriculture, December, 1941.

State or Territory	Tuberculin tests during month			Modified accredited counties		Total once-tested free		Total accredited		Total under supervision		Inspector in Charge	State Official
	Herds	Cattle	Reacted	Number	Percent	Herds	Cattle	Herds	Cattle	Herds	Cattle		
Alabama	12	696	1	67	100	270,875	1,140,134	611	36,944	271,445	1,173,920	R. E. Jackson	R. S. Sugg, Auburn
Arizona	187	5,805	7	14	100	12,236	178,324	8	3,587	12,593	192,845	F. L. Schneider	T. B. Jones, Phoenix
Arkansas	107	1,340	-	75	100	228,256	1,244,000	-	-	228,256	1,244,000	A. W. Rice	Joe S. Campbell, Little Rock
California	2,603	113,026	586	58	100	74,608	2,148,258	18	1,858	74,669	2,158,931	H. M. O'Rear	C. U. Duckworth, Sacramento
Colorado	163	4,476	15	63	100	60,611	1,093,367	30	2,808	60,846	1,129,043	Edgar Heiny	R. M. Gow, Denver
Connecticut	2,693	32,907	79	8	100	352	1,257	17,366	167,463	18,820	184,578	R. L. Smith	Claude Jones, Hartford
Delaware	210	3,224	15	3	100	6,286	16,964	2,085	36,843	8,393	54,175	O. L. Lockwood	Harry McDaniel, Jr., Dover
District of Col.	-	-	-	1	100	15	195	2	601	17	796	A. E. Wight	
Florida	47	1,964	-	67	100	40,590	485,711	62	6,864	67,656	1,251,636	T. H. Applewhite	J. V. Knapp, Tallahassee
Georgia	29	859	-	159	100	242,448	1,176,583	45	4,292	242,547	1,181,742	W. C. Dendinger	Tom Linder, Atlanta
Idaho	138	2,088	2	44	100	51,097	589,520	43	1,743	51,270	768,000	A. K. Kuttler	A. P. Schneider, Boise
Illinois	4,258	63,198	110	102	100	233,194	1,332,782	687	26,958	243,420	2,049,053	J. J. Lintner	C. E. Fidler, Springfield
Indiana	1,184	16,243	21	92	100	146,070	1,207,126	1,343	37,267	147,750	1,250,000	W. A. Sullivan	J. L. Axby, Indianapolis
Iowa	6,610	143,375	653	99	100	169,000	2,530,000	406	14,855	194,440	3,500,000	J. A. Barger	C. C. Franks, Des Moines
Kansas	145	2,800	13	105	100	170,338	1,922,881	197	10,673	171,032	2,016,221	Ralph Graham	Will J. Miller, Topeka
Kentucky	100	1,500	1	120	100	163,647	851,157	24	1,346	163,867	852,557	E. E. Coshow	L. L. Breeck, Frankfort
Louisiana	130	5,123	17	64	100	148,764	1,474,469	-	-	148,804	1,478,362	W. A. McDonald	E. P. Flower, Baton Rouge
Maine	139	1,212	5	16	100	43,132	232,233	171	5,106	43,817	238,761	B. J. Cady	B. P. Corbett, Augusta
Maryland	1,303	21,463	19	23	100	29,197	65,131	14,711	206,953	44,013	272,348	O. L. Lockwood	Mark Welsh, Baltimore
Massachusetts	1,989	28,524	99	14	100	1,061	3,802	20,695	209,941	21,848	214,496	E. N. Aldrich	Jas. DeNormandie, Boston
Michigan	3,786	38,675	57	83	100	207,010	1,773,893	67	6,390	207,087	1,775,352	C. H. Hays	C. H. Clark, Lansing
Minnesota	2,783	47,808	90	87	100	188,326	3,249,072	783	25,925	189,696	3,296,468	W. J. Fretz	C. E. Cotton, St. Paul
Mississippi	169	1,917	2	82	100	260,164	1,650,562	4	383	260,178	1,652,294	Hartwell Robbins	E. S. Brashier, Jackson
Missouri	71	1,311	-	114	100	237,707	2,635,852	69	5,216	239,687	2,852,640	E. C. Hughes	J. W. George, Jefferson City
Montana	147	4,680	9	56	100	72,999	1,157,504	22	2,137	73,033	1,161,287	G. W. Cronen	W. J. Butler, Helena
Nebraska	28	791	7	93	100	134,387	2,807,357	31	3,277	135,227	2,842,284	J. W. Murdoch	J. R. Snyder, Lincoln
Nevada	-	-	-	17	100	3,517	325,911	2	353	3,441	326,140	S. H. Still	W. B. Earl, Reno
New Hampshire	1,913	18,033	13	10	100	654	2,256	17,482	155,997	18,534	158,498	E. N. Aldrich	R. W. Smith, Concord
New Jersey	1,442	25,407	135	21	100	1,947	19,232	14,406	183,181	16,456	208,183	J. R. Porteus	R. A. Hendershott, Trenton
New Mexico	4	44	-	31	100	22,104	250,953	17	987	25,450	259,393	F. L. Schneider	Sam McCue, Albuquerque
New York	5,160	125,598	322	62	100	6,423	104,582	131,874	3,877,862	139,057	2,006,017	H. B. Leonard	E. T. Faulder, Albany
North Carolina	79	2,469	-	100	100	256,170	666,059	463	17,387	256,633	683,446	A. A. Husman	William Moore, Raleigh
North Dakota	77	3,428	11	53	100	65,410	1,115,834	40	2,326	68,010	1,174,488	F. C. Driver	T. O. Brandenburg, Bismarck
Ohio	6,903	55,360	64	88	100	244,827	1,842,987	580	20,050	245,097	1,847,637	A. J. DeFosset	F. L. Carr, Columbus
Oklahoma	390	7,769	4	77	100	276,267	2,939,443	24	2,929	276,311	2,943,864	C. H. Fauks	D. H. Ricks, Oklahoma City
Oregon	1,164	13,585	25	36	100	196,768	1,673,017	2,054	78,986	208,340	1,827,239	S. B. Foster	W. H. Lytle, Salem
Pennsylvania	4,903	52,998	172	67	100	152,320	1,064,425	6,994	158,898	166,308	1,382,221	J. B. Reity	C. P. Bishop, Harrisburg
Rhode Island	110	2,626	16	5	100	2,353	13,451	1,299	13,304	4,111	30,001	E. N. Aldrich	R. G. Bressler, Providence
South Carolina	61	861	1	46	100	57,089	198,477	86	6,978	57,177	205,661	W. K. Lewis	J. K. Lewis, Columbia
South Dakota	1,430	40,216	29	69	100	73,297	1,758,164	2	326	73,365	1,761,000	Neil Flank	R. S. Robinson, Pierre
Tennessee	155	2,415	8	93	100	294,895	1,412,995	24	2,558	294,933	1,416,320	H. L. Fry	C. E. Kord, Nashville
Texas	599	10,063	101	254	100	252,815	3,516,310	63	9,286	292,281	4,503,712	H. L. Darby	T. O. Booth, Fort Worth
Utah	259	1,787	15	29	100	87,101	412,599	128	4,512	87,439	418,820	H. H. Cohenour	J. I. Curtis, Salt Lake City
Vermont	907	16,077	13	14	100	5,819	96,847	18,100	286,482	23,953	393,870	N. M. Howlett	E. H. Jones, Montpelier
Virginia	246	7,698	8	100	100	198,913	731,995	511	47,833	199,294	780,394	H. S. Miller	H. C. Givens, Richmond
Washington	235	3,982	14	39	100	76,414	752,519	33	1,656	76,475	756,000	J. C. Ackline	M. O. Barnes, Olympia
West Virginia	152	1,850	3	55	100	114,192	619,662	594	15,212	114,794	635,050	H. M. Newton	T. C. Green, Charleston
Wisconsin	1,833	41,767	32	71	100	178,749	3,169,854	6,347	188,159	183,365	3,365,357	J. S. Healy	V. S. Larson, Madison
Wyoming	98	1,361	3	23	100	20,216	504,564	2	264	20,226	514,083	F. H. Melvin	H. D. Fort, Cheyenne
Hawaii	-	-	-	-	100	1,800	64,000	-	-	1,800	64,000	A. M. Julien	E. H. Willers, Honolulu
Puerto Rico	645	10,688	28	77	100	52,485	433,369	-	-	62,568	438,583	E. E. Maas	Isidoro A. Colon, San Juan
Virgin Islands	-	-	-	3	100	419	12,848	-	-	420	12,922	E. E. Maas	G. C. Kendall, Christiansted
	57,796	991,087	2,825	3,151	100	5,845,834	55,170,487	260,605	3,894,956	6,236,249	62,904,688		

Summary of brucellosis (Bang's disease) work in coöperation with the various states, Bureau of Animal Industry, United States Department of Agriculture, December, 1941.

State or Territory	Tests made of blood samples during month		Tests of herds containing reactors				** Calves vaccinated during month	Modified accredited counties	Total accredited		Herds and cattle under supervision		Total cattle on waiting list	Inspector in charge	State official
					Reactors										
	Herds	Cattle	Herds	Cattle	For slaughter	* Held in calfhood vaccinated herds			Herds	Cattle	Herds	(Approx.) Cattle			
Alabama	865	11,404	115	8,723	397	-	46	23	646	122,011	120,323	626,625	59,771	R. E. Jackson	R. S. Sugg, Auburn
Arizona	84	1,318	14	506	24	-	25	-	12	802	4,072	45,267	2,000	F. L. Schneider	T. B. Jones, Phoenix
Arkansas	903	9,539	72	3,566	323	-	104	54	-	-	199,680	808,893	-	A. N. Rice	Joe S. Campbell, Little Rock
Colorado	120	2,836	23	1,053	17	109	621	-	24	939	2,665	35,973	3,470	Edgar Haigy	R. M. Gow, Denver
Connecticut	167	4,800	24	911	43	-	48	-	331	10,008	532	13,076	-	R. L. Smith	Claude Jones, Hartford
Delaware	194	2,379	27	480	24	19	47	1	355	7,424	6,326	33,885	397	O. L. Lockwood	Harry McDaniel, Jr., Dover
Florida	845	20,380	86	6,903	223	-	56	1	264	17,461	23,318	161,223	-	T. H. Aconlewhite	J. V. Knapp, Tallahassee
Georgia	2,353	18,057	99	4,770	345	-	-	50	20	1,745	120,964	341,548	218,126	W. C. Dendinger	Tom Linder, Atlanta
Idaho	980	10,541	211	3,754	577	-	1,298	6	2,728	33,410	42,514	396,802	-	A. K. Kuttler	A. P. Schneider, Boise
Illinois	205	5,309	52	1,662	263	-	62	-	487	11,320	13,419	207,110	-		C. E. Fidler, Springfield
Indiana	123	1,622	6	87	14	-	-	-	5,283	95,621	4,636	78,865	731	W. A. Sullivan	J. L. Axby, Indianapolis
Iowa	1,346	23,981	524	11,712	2,066	-	228	-	2,764	49,752	26,529	527,875	17,802	J. A. Barger	C. C. Franks, Des Moines
Kansas	381	5,861	68	1,190	138	-	-	-	337	10,559	3,962	134,806	1,699	Ralph Graham	Will J. Miller, Topeka
Kentucky	180	5,344	38	1,589	101	1	4	-	59	2,016	39,007	292,068	-	E. E. Coshow	L. L. Breeck, Frankfort
Louisiana	289	3,197	24	1,608	103	48	1,092	17	-	-	62,939	377,242	38,311	W. A. McDonald	E. P. Flower, Baton Rouge
Maine	1,401	13,203	270	4,532	675	-	147	-	208	4,510	8,878	90,848	-	B. J. Cady	D. P. Corbett, Augusta
Maryland	879	12,124	119	2,878	303	37	253	2	3,415	57,440	23,148	147,738	2,374	O. L. Lockwood	Mark Welsh, Baltimore
Massachusetts	-	-	-	-	-	-	-	-	91	4,021	99	4,290	-	E. M. Aldrich	Jas. DeNormandie, Boston
Michigan	1,273	13,500	180	2,647	430	27	134	21	2,416	37,522	26,102	262,410	5,687	C. H. Hays	C. H. Clark, Lansing
Minnesota	2,209	45,102	303	7,690	963	-	-	13	51	1,400	86,773	1,251,967	48,800	W. J. Fretz	C. E. Cotton, St. Paul
Mississippi	1,187	6,696	51	1,611	99	-	-	2	437	9,111	7,501	118,949	-	H. Robbins	E. S. Brashier, Jackson
Missouri	474	7,255	107	2,382	324	-	-	-	57	2,833	83,427	791,894	-	E. C. Hughes	John W. George, Jefferson City
Montana	266	4,287	39	1,523	61	62	1,299	-	24	1,361	2,528	41,701	-	G. W. Cronen	W. J. Butler, Helena
Nebraska	184	2,907	35	852	127	-	52	-	371	6,183	6,998	110,428	1,607	J. W. Kurdoch	J. R. Snyder, Lincoln
Nevada	12	612	2	332	56	-	170	-	36	1,257	137	4,371	-	S. H. Still	W. B. Earl, Reno
New Hampshire	1,052	13,747	156	4,263	329	-	-	-	3,393	31,336	7,690	85,730	156	E. M. Aldrich	R. W. Smith, Concord
New Jersey	455	9,550	51	3,106	70	72	154	-	280	8,205	1,090	18,633	-	J. R. Porteus	R. A. Hendershott, Trenton
New Mexico	131	1,923	14	583	45	-	97	-	7	437	9,757	110,651	2,000	F. L. Schneider	Sam McCue, Albuquerque
New York	485	16,153	243	9,029	234	953	789	-	1,118	29,877	4,405	114,661	39,849	H. B. Leonard	E. T. Faulder, Albany
North Carolina	3,185	14,717	48	2,030	91	-	-	69	101	24,989	236,732	571,596	35,000	A. A. Husman	William Moore, Raleigh
North Dakota	1,781	32,453	172	5,392	491	98	812	18	30	1,534	46,027	640,904	219,020	F. C. Driver	T. O. Brandenburg, Bismarck
Ohio	806	10,969	78	1,799	204	-	67	3	2,799	52,061	56,631	650,646	43,250	A. J. DeFosset	F. L. Carr, Columbus
Oklahoma	781	10,319	135	4,084	425	10	225	-	1,222	27,885	45,751	395,442	4,448	C. H. Fauks	D. H. Ricks, Oklahoma City
Oregon	2,300	27,717	154	4,740	583	141	1,560	16	-	-	100,822	933,015	-	S. B. Foster	W. H. Lytle, Salem
Pennsylvania	2,506	47,841	628	14,909	1,510	-	-	17	6,299	127,961	73,151	624,841	178,565	J. B. Reidy	C. P. Bishop, Harrisburg
Rhode Island	26	1,065	6	206	12	-	-	-	21	574	136	3,650	7	E. M. Aldrich	R. G. Bressler, Providence
South Carolina	568	2,909	10	307	4	45	5	5	80	5,043	33,743	90,462	3,500	W. K. Lewis	W. K. Lewis, Columbia
South Dakota	94	2,920	43	1,823	85	160	1,153	-	172	4,019	1,885	48,494	9,000	Neil Plank	R. S. Robinson, Pierre
Tennessee	683	6,609	71	3,296	156	-	41	6	348	11,872	48,014	311,380	2,500	H. L. Fry	C. E. Kord, Nashville
Texas	149	5,341	26	2,179	44	119	103	-	1,086	20,391	2,532	46,809	-	H. L. Darby	T. O. Booth, Fort Worth
Utah	526	4,720	110	2,382	223	30	374	2	-	-	31,746	226,115	-	N. N. Cohenour	J. I. Curtis, Salt Lake City
Vermont	791	14,320	333	8,768	-	1,237	1,249	-	264	8,270	1,818	53,183	11,471	N. H. Howlett	E. H. Jones, Montpelier
Virginia	1,708	18,033	244	7,222	573	-	-	74	243	12,669	189,037	690,235	91,755	H. S. Miller	H. C. Givens, Richmond
Washington	1,821	26,431	231	7,963	824	65	882	16	-	-	68,883	648,000	-	J. C. Exline	M. O. Barnes, Olympia
West Virginia	1,180	9,886	35	1,191	53	-	59	24	253	8,406	65,842	353,749	-	H. M. Newton	T. C. Green, Charleston
Wisconsin	2,132	49,714	718	20,129	2,459	-	83	6	33,256	645,157	81,027	1,437,001	9,420	J. S. Healy	V. S. Larson, Madison
Wyoming	90	2,185	12	1,011	21	63	179	-	4	245	2,975	74,469	-	F. H. Melvin	H. D. Port, Cheyenne
Totals	40,170	561,776	6,007	179,373	16,132	3,296	13,518	446	71,392	1,509,637	2,026,171	15,035,520	1,050,716		

* Non-vaccinated reactors held during the month.
** Calves in experimental herds not included.

THE NEWS

AVMA Activities

Board of Governors Meets in Chicago

Wartime preparedness problems and administrative affairs concerning the Association's coming convention brought the Board of Governors (O. V. Brumley, H. W. Jakeman, W. W. Dimock) to Chicago for a special meeting on May 7-8.

Matters to which principal consideration was given during the two-day session were:

1) A basic program for veterinary participation in civilian defense activities.
2) Developments in connection with the national egg production program planned by the Special Committee on Poultry Diseases.
3) Plans for the seventy-ninth annual meeting, to be held in Chicago, August 17-20.
4) Priorities for veterinarians.
5) Proposed amendments to the constitution and administrative by-laws.

In response to requests from several veterinary associations in the Northwest for an AVMA representative at their summer meetings, the Board of Governors designated President Jakeman to attend the Idaho meeting at Nampa, June 30-July 1; the Northwest meeting in Seattle, July 6-8 and the Montana meeting in Great Falls, July 10-11.

Inter-Association Conference on Animal Disease and Productive Efficiency

Following informal discussions held in Boston during the meeting of the Federated Societies for Experimental Biology early in April, 1942, representatives of several associations concerned with animal health in its relation to productive efficiency gathered at the Stevens Hotel in Chicago, May 11, to give further consideration to problems related to the war production program and to peacetime needs.

The participating associations and their official representatives were:

American Veterinary Medical Association: H. W. Jakeman.
United States Live Stock Sanitary Association: Mark Welsh.
American Society of Animal Production: E. N. Wentworth.
Poultry Science Association: L. E. Card.
American Dairy Science Association: George E. Taylor (absent).

The purpose of these conferences is to develop ways and means of inter-association coöperation towards an effective program of education and research in which all agencies and organizations concerned with livestock improvement will assist.

The conference voted to recommend two lines of procedure to the participating associations:

1) The establishment of a committee on animal diseases, under the National Research Council, for the development, maintenance, and conservation of the nation's animal resources.

2) Coöperation with the AVMA in preparing and promoting programs for each class of livestock to improve productive efficiency and disease-control measures similar to the plan already adopted by the AVMA for increasing national egg production.

President H. W. Jakeman of the AVMA is serving as chairman of the conference group.

Wanted: Motion Picture Films on Veterinary Diagnosis, Anesthesia and Therapy

Can you furnish or recommend any motion picture films portraying clinical techniques which could be shown during the seventy-ninth annual meeting of the AVMA in Chicago, August 17-20? Such material is needed for "Clinical Depictions," a special program series which will replace operative clinics at the convention.

The types of films desired are those pertaining to diagnosis, anesthesia, and therapy—both surgical and medical—and to animal diseases in general.

Lantern slides of particular clinical interest also can be utilized in these demonstrations.

If you are able and willing to offer material of the above types, or know where it may be obtained (individuals, educational institutions, research laboratories, or other sources), please notify the AVMA office, 600 S. Michigan Ave., Chicago, Ill.

Plan Now to Attend the Seventy-Ninth Annual Meeting, Chicago, August 17-20

The following enlisted men were on duty at the Office of the Depot Veterinarian, Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago, Illinois, April 4, 1942:

Front Row: Pfc. George B. Zollars, Cpl. Wilbert A. Gebhard, Stf. Sgt. Walter J. Janik, Tech. Sgt. Albert B. Fuchs, M. Sgt. Hubert Jarrett, Stf. Sgt. James A. Samples, Stf. Sgt. Roy B. Thompson, Sgt. Edward W. Terrell, Pvt. Robert G. Roderick.

2nd Row: Pfc. Bertram L. Dorminey, Pvt. Donald F. Lashbrook, Pfc. John T. Hepperly, Pfc. Edward J. Giedraitis, Pfc. Phillip P. Boyle, Pvt. William H. Dingman, Pvt. Elwood C. Burgstone, Pvt. Cecil H. Brothwell, Pfc. George T. Tyo, Pfc. Corben F. Griesbaum.

3rd Row: Pfc. William W. Queen, Pvt. Thomas J. Casey, Pvt. Arthur R. Olsen, Pvt. Louie Morgan, Pvt. Marion B. Morris, Pfc. Thomas L. Chambers, Pfc. LeRoy P. Harte, Pvt. Albert E. Edmundson, Pfc. Albert H. Davidow, Pfc. Elvy Barker.

Back Row: Pfc. William E. Davis, Pfc. Henry W. Rosenthal, Pvt. Ralph Moeller, Pvt. Albert H. Huddleston, Pvt. John P. Yoder, Pfc. Robert H. Ingham, Pfc. Richard E. Albrecht, Pvt. William F. Eckhardt, Pvt. John T. MacLean, Pfc. Gordon J. Campbell.

Ingham, Pfc. Richard E. Albrecht, Pvt. William F. Eckhardt, Pvt. John T. MacLean, Pfc. Gordon J. Campbell.

The following officers were on duty at the Office of the Depot Veterinarian, Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago, Illinois, March 24, 1942:

Front Row: 1st Lts. Ray M. Batchelder, William C. Piper, Jr., Captain Roy A. Resseguie, Major John W. Burke, Lt. Colonel Fred C. Waters, Lt. Colonel Louis L. Shook, Major Buell S. Law, Captain Robert W. Cook, 1st Lts. Frank W. Jordan, Lloyd E. Jameson, Raymond W. Hayes.

2nd Row: 1st Lts. Clifford N. Decker, Ernest J. Mack, Arthur E. Moats, James H. Clements, Maurice K. Walters, Thomas W. Lennon, Jr., Ralph G. Watson, Claude Hudson, Thomas E. Utley, William S. Britton, Lloyd C. Ferguson.

3rd Row: 1st Lts. Wade O. Brinker, Roland C. Glaisyer, Guilford S. Elwood, Milo J. Henshaw, Robert J. Cyrog, Wallace V. Hornbacker, Arlye M. McDermid, Charles H. Snider, Richard D. Siegle, Charles H. Failing, Hilton A. Schmidt.

Back Row: 1st Lts. Mulford C. Lockwood, Thomas W. Tamoglia, George E. Cottral, Loyd E. Boley, Paul C. Garner, Frank L. Meyer, Glen S. Remsberg, Glenn M. McFadden, George K. Lang, Don C. Vest, Warren H. Smeltzer.

Missing: Major John A. Patton, 1st. Lts. Kenneth S. Young, William J. Sherwood, Charles W. DeLand, George J. MacLean, Walter B. Prendergast, Roger Grossman, William K. Harris, Ladd N. Loomis.

Proposed Amendments to Constitution and Administrative By-Laws

The following proposals have been made during the past year, either at the annual meeting in Indianapolis or since then. Those made last year are republished for the information of all members, especially delegates to the AVMA House of Representatives.

The amendments to the By-Laws proposed since last year are published in accordance with Section 3, Article XIII, of the Administrative By-Laws which reads:

Section 3.—Excepting sections affecting the corporate officers provided in the constitution, the administrative by-laws may be permanently amended at any annual session by submitting, in writing, notice thereof to all the membership 90 days prior to the annual session at which final action is to be taken. Publication of proposed amendments in three consecutive issues of the JOURNAL shall be regarded as due notification to the members.

These proposals were published in May and will be published again in the July issue of the JOURNAL in accordance with this provision.

Proposal No. 1.—Amend Article V, Section 5 of the Constitution so that it will read:

"Two members of the Executive Board and the chairman of the House of Representatives shall constitute the Board of Governors, which shall have charge of the administrative affairs of the Association between the regular meetings of the whole Board. It shall consist of the president, the president-elect and the chairman of the House of Representatives, and shall hold meetings at such times and places as the chairman may direct.

"It shall make an annual report of its actions to the whole Board which shall be included in the records of the Executive Board." (Submitted by J. C. Flynn to the Executive Board and House of Representatives at the Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 2.—Add a new subparagraph to Section 2, Article VIII, Administrative By-Laws, to read:

"d) The terms of office of members of the Executive Board shall terminate at the end of the annual meeting held during the last year of the term for which they were elected." (Submitted by Executive Board to House of Representatives at Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 3.—Amend Section 3, of Article VIII, Administrative By-Laws, by adding a new paragraph to read:

"a) Vacancies occurring on the Executive Board for any reason during the term for which the member was duly elected, shall be filled by appointment to be made by the president, the appointee to serve until election can be held in the shortest possible time, except in the case of the member-at-large, which shall be filled by election at the next general assembly." (This proposal offered by House of Representatives at Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 4.—Add a new section, to be numbered Section 12, to Article IX of the Administrative By-Laws to read:

Section 12.—"The House shall elect a chairman annually at the close of its last meeting held during a regular session of the Association. He shall be a duly elected member of the House of Representatives. He shall be elected by a majority vote of said House and shall hold office until his successor is elected and installed." (Submitted by J. C. Flynn, to the Executive Board and House of Representatives at the Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 5.—If the foregoing is adopted, then paragraph (a), Section 3 of Article II, Administrative By-Laws, should be changed by striking out the words "and at all sessions of the House of Representatives" so that the paragraph would then read:

"a) The president shall preside at all general sessions but is empowered with the authority to yield the chair to the senior vice-president available for the performance of these duties." (Submitted by J.•C. Flynn, to the Executive Board and House of Representatives at the Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 6.—Amend subparagraphs (c) and (d), Section 2, Article X, Administrative By-Laws to read:

(c) Dues shall be $7.00 a year, of which $2.50 is for payment of one year's subscription to the official JOURNAL of the Association. Dues are payable in advance on January 1 of each year.

"d) Membership Fee and Dues.—The membership fee shall be $5.00, and dues, which include subscription to the JOURNAL, shall be $7.00. Both are payable in advance at the time the application is filed. But, in order that the dues and subscriptions shall run from January 1, of each year, the following amounts shall be remitted with each application filed during a given month.

January	$12.00	July	$8.50
February	11.42	August	7.92
March	10.84	September	7.34
April	10.25	October	6.75
May	9.67	November	6.17
June	9.09	December	5.58

Of the annual dues of $7.00, $2.50 is to be credited as subscription to the JOURNAL.

(The proposal to increase dues submitted by Executive Board to House of Representatives,

Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 7.—Amend subparagraph (a), Section 5, Article X, Administrative By-Laws by striking out the words "and completed" so that the paragraph would then read:

"a) Junior members recommended as being in good standing in their respective junior chapters for three years may be admitted to membership without the payment of the membership fee of $5.00, provided the application is filed within 30 days after the date of their graduation." (Submitted by Executive Board to House of Representatives, Seventy-Eighth Annual Meeting, August 11-15, 1941).

Proposal No. 8.—Amend Article XII, "Committees—Standing and Special," by adding to Section 1 the following:

9. COMMITTEE ON NUTRITION

a) Personnel.—This committee shall consist of five members, one of whom shall be appointed annually by the President for a term of five years. The first membership shall be appointed for one, two, three, four and five years, respectively, for terms expiring in the same order.

b) Duties.—It shall be the duty of this Committee to study and report annually, or more often, upon developments in the science of nutrition significant to veterinary science and education.

10. COMMITTEE ON POULTRY

a) Personnel.—This committee shall consist of five members, one of whom shall be appointed annually by the President for a term of five years. The first membership shall be appointed for one, two, three, four and five years, respectively, for terms expiring in the same order.

b) Duties.—It shall be the duty of this Committee to study and report annually, or more often, upon the fields of poultry science and pathology and their application by veterinarians to the problems of poultry diseases. (Submitted by Cliff D. Carpenter.)

Proposal No. 9.—Amend the entire Article XVIII, Administrative By-Laws, entitled "Local Secretaries" so that it will read:

"Section 1.—It shall be the duty of each constituent association to nominate one of its members as the resident state secretary of the AVMA and to submit his name for appointment by the president-elect. The nomination shall be made by the constituent association at its stated meeting prior to the AVMA convention.

"a) Tenure.—The term of office shall be two interconvention years. The announcement of the election of resident state secretaries shall be made at each annual convention and published in the JOURNAL the first or second month following the annual convention."

"b) Duties.—The duties of resident secretaries are (1) to maintain a continuous liaison between the constituent and the national associations on all matters appertaining to the work of the veterinary profession, (2) to aid the executive secretary in promoting the welfare of the membership within his jurisdiction, (3) to assist in enlarging the membership and (4) to report news of general interest for publication, particularly new legislation and regulations pertaining to the veterinary service."

"c) Resident secretaries and foreign correspondents in territories not having a constituent association shall be appointed by the president-elect for a term of one interconvention year. (Submitted by Executive Board of the House of Representatives, Seventy-Eighth Annual Meeting, August 11-15, 1941).

APPLICATIONS

First Listing*

BEATTIE, JACK H.
Clinton, N. J.
B.V.Sc., Ontario Veterinary College, 1941.
Vouchers: Dr. Walter A. Boyd and John D. Case.

BEIL, LESTER E.
Buck Creek, Ind.
D.V.M., Indiana Veterinary College, 1914.
Vouchers: J. L. Kixmiller and J. F. Roberts.

COMBER, FRANCIS R.
942 Sixth St., Port Huron, Mich.
M.D.C., Chicago Veterinary College, 1909.
Vouchers: Chauncey C. Stevens and Cassius Way.

COOK, LEO J.
212 E. 71st St., Chicago, Ill.
D.V.M., Cincinnati Veterinary College, 1919.
Vouchers: G. M. Smith and F. L. Bartlett.

FELIX, JAMES L.
P. O. Box 1087, Casper, Wyo.
D.V.M., St. Joseph Veterinary College, 1915.
Vouchers: F. H. Melvin and P. E. Madsen.

FINNEY, LAWRENCE
Georgetown, Ill.
D.V.M., McKillip Veterinary College, 1912.
Vouchers: E. M. Lynn and L. A. Merillat.

HAMILTON, J. G.
14 Carleton Ave., Washington, N. J.
B.V.Sc., Ontario Veterinary College, 1936.
Vouchers: John D. Case and T. E. Lisowski.

HUNTER, A. H.
56 Windsor Road, Mansfield, Notts., Eng.
D.V.Sc., M.R.C.V.S., D.V.S.M., Ontario Veterinary College, 1914; Royal Veterinary Col-

*See January, 1942 issue, p. 92.

lege, London, 1920; Royal (Dick) Veterinary College, Edinburgh, 1927.
Vouchers: G. S. Muir and J. G. Hardenbergh.

LARCOM, R. B.
R.F.D. No. 1, Kittery, Maine.
D.V.M., Michigan State College, 1938.
Vouchers: S. W. Stiles and Geo. M. Potter.

MOON, EUGENE E.
511 New Federal Bldg., Atlanta, Ga.
D.V.M., Iowa State College, 1940.
Vouchers: S. B. Moon and W. C. Dendinger.

MOORE, BENJAMIN A.
604 Franklin Ave., Council Bluffs, Iowa.
D.V.M., Kansas City Veterinary College, 1916.
Vouchers: A. H. Quin and J. G. Hardenbergh.

MURPHY, JOHN J. JR.
2218 Massachusetts Ave., Cambridge, Mass.
D.V.M., Ohio State University, 1931.
Vouchers: L. A. Paquin and Bertram S. Killian.

NEUGEBAUER, J. B.
Ellendale, Minn.
D.V.M., McKillip Veterinary College, 1915.
Vouchers: Orval C. Selby and Howard C. H. Kernkamp.

NEWHART, CHESTER D.
7126 St. Lawrence Ave., Chicago, Ill.
D.V.M., St. Joseph Veterinary College, 1917.
Vouchers: Robert Gysel and L. A. Merillat.

PORTER, B. J.
512 S. Broadway, Albert Lea, Minn.
D.V.M., Iowa State College, 1931.
Vouchers: H. C. H. Kernkamp and R. Fenstermacher.

RUNDAHL, EARL M.
Windsor Arms Apt. 133, Omaha, Nebr.
D.V.S., Colorado State College, 1917.
Vouchers: Charles J. Prchal and Phillip T. Smith.

RYAN, JOHN H.
903—2nd Ave., Rockford, Ill.
D.V.M., Iowa State College, 1935.
Vouchers: R. W. Boone and Theodore M. Bayler.

SADLER, EDWARD G.
Box 504, Ellsworth, Maine.
D.V.M., Cornell University, 1932.
Vouchers: Bert J. Cady and S. W. Stiles.

STIRRETT, C. S.
R.F.D. No. 1, Statesville Highway, Salisbury, N. Car.
D.V.M., McKillip Veterinary College, 1913.
Vouchers: J. H. Brown and A. A. Husman.

WAKEMAN, SHERWOOD A.
12332 S. 75th Ave., Palos Heights, Ill.
D.V.M., Michigan State College, 1939.
Vouchers: Ralph Kolo and G. M. Smith.

WATTS, IRA M.
403 Federal Bldg., Cheyenne, Wyo.
D.V.S., Colorado State College, 1910.
Vouchers: F. H. Melvin and P. E. Madsen.

WOOD, JOHN W.
356 East 79th St., Chicago, Ill.
D.V.M., St. Joseph Veterinary College, 1918.
Vouchers: E. M. Lynn and Roy E. Willie.

Second Listing

Brandly, Paul J., 1804 West Congress St., Chicago, Ill.
Buller, G. L., Brookshire, Texas.
Cruse, C. L., 930 N. W. Blvd., Winston-Salem, N. Car.
Fargus, Grant I., P. O. Box 215, Mercersburg, Pa.
Fehrenbacher, P. T., Philo, Ill.
Foust, John W., Hope, Ind.
Giles, D. D., 542 Park St., Nacogdoches, Texas.
Hunt, B. C., 5233 Irving Park Rd., Chicago, Ill.
Law, John J., Hopkins, Mich.
Livingstone, J. M., 643 East 83rd St., Chicago, Ill.
Lowe, O. E., Charlottesville, Ind.
McDonald, G. G., P. O. Box 24, Brighouse, B. C.
Miller, W. E., 303 N. Swarts, Abingdon, Ill.
Neff, Noble W., Milford, Ind.
Pease, Fred W., 3300 S. Congress Ave., Austin, Texas.
Perkins, R. W., R.F.D. No. 3, Houlton, Maine.
Richardson, Alton, 2 Pleasant St., Waterville, Maine.
Scott, Verne A., c/o John Tarleton Agricultural College, Stephenville, Texas.
Shultz, Guy L., 148 Spring Road, Carlisle, Pa.
Tyler, Leonard L., 74 Greenwood St., Canisteo, N. Y.
Veld, Edward, South Holland, Ill.
Von Glan, Edward H., Veterinary Station Hospital, Schofield Barracks, T. H.
Witter, W. F., P. O. Box 436, Richmond, Va.

Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice via postcard or letter will be greatly appreciated.

Andrews, Whipple, 405 S. 11th St., Boise, Ida.
Austin, E. M., 3681 Indiana St., San Diego, Calif.
Broussard, Geo. P., 417 E. Main St., New Iberia, La.
Castro, Fred, General Delivery, Omaha, Neb.
Cornwell, James I., Star Route, Asheville, N. Car.
Creely, Andrew, 701 Grand Ave., San Francisco, Calif.
DeMott, Andre R., Utica St., DeRuyter, N. Y.
Dennie, F. W., 1519-41st St. Place, DesMoines, Ia.
Denton, J. P., R. R. 3, Anthony, Kan.
Derrer, R. C., Gooding, Ida.
Earhart, Capt. Robert N., Kelly Field, Tex.
Enge, Clifford O., Butterfield, Minn.
Funderburg, David, c/o Hotel, Oconto Falls, Wis.
Gale, M. E., Box 673, West Palm Beach, Fla.
Gleason, J. L., 43 Bemeda Ave., Toronto, Ontario

Griffith, A. R., Thomasville, Ga.
Hayes, Isaac E., 1012½ Wellington, Waterloo, Ia.
Hedler, Herbert R., General Delivery, Portland, Ore.
Heller, Oliver P., 838 N. 2nd, Marshfield, Ore.
Hinkle, T. B., 301 Broadfoot Ave., Fayetteville, N. Car.
Hoffman, Lt. M. F., Camp Lee, Va.
Keane, John J., 26 Franklin St., Peabody, Mass.
Keown, G. H., 1420 Elford St., Victoria, B. C.
Koch, Meyer, 1416 16th St., So., Birmingham, Ala.
Leasure, T. J., 809 Vermont, Lawrence, Kan.
Loomis, Ralph E., 10 Main St., Wellsboro, Pa.
Martens, O. G., Box 27, Aron, Ill.
Mathis, Rudy C., Atlanta, Ga.
Mesenbrink, R. L., General Delivery Kirksville, Mo.
Mitchell, Howard H., Rolla, N. D.
Murphy, Claude F., Box 339. So. Omaha Station, Neb.
Pinckard, W. L., State Veterinarian's Office, State Office Bldg., Nashville, Tenn.
Schendel, Samuel A., Richmond, Kan.
Shelby, Clarence F., Winnsboro, La.
Spears, C. J., Dublin, Ga.
Swart P. Bruce Medical Reception Center, Camp Grant, Ill.
Swindle, B. C., 209 W. Glenn Ave., Auburn, Ala.
Teller, W. Bruce, 210 N. Washington, Prescott, Ariz.
Thompson, J. C., c/o Dept. of Agriculture, Olympia, Wash.
Title, Harold B., 233 Maple St., Laurel, Miss.
Todd, Capt. Frank A., V. C., 021675, A.P.O. 801, c/o Postmaster, New York City.
Underwood, H. W., 121 Market St., Clearfield, Pa.
Voetberg, Henry G., 205 Post Office Bldg., So. St. Paul, Minn.
Watts, Lt. F. B., Fort Sam Houston, Houston, Tex.
Werrin, V. C., Lt. Milton, 408 So. 3rd St., Philadelphia, Pa.
Winter, E. F., Oxford, N. Car.
Zinober, Moses R., 1047 Post Office Bldg., Saint Paul, Minn.

U. S. GOVERNMENT

Dressed Poultry Inspection Service

The office of the Dressed Poultry Inspection Service, Dairy and Poultry Branch, Agricultural Marketing Administration, U. S. Department of Agriculture, has been moved to room 910, U. S. Custom House, 610 S. Canal St., Chicago, Ill.

Brucellosis.—As of April 10, the Bureau of Animal Industry announces that 76 counties in 19 states have been added to the list of areas that have been practically freed from bovine brucellosis. The counties contain approximately 735,000 dairy and breeding cattle 6 months old or older. The total number of counties now accredited is 522 in 24 states. North Carolina, Georgia and Arkansas are signalized as states which have made noteworthy progress in brucellosis eradication.

On Apr. 4, there were 22 Negro officers of the medical department graduated from the Medical Field Service School of the army at Carlisle Barracks, Pa. They were trained for service in the medical battalion of a new division. All are first lieutenants called to duty from civil life in 13 states and the District of Columbia. Four of them were dental officers. Eleven of this class were from southern states. The Medical Service School has now graduated 51 Negro medical officers.

The Senate confirmed on March 7, President Roosevelt's nomination of Col. R. A. Kelser, chief of the U. S. Army Veterinary Corps, for the rank of brigadier general. Dr. Kelser entered the Army as a second lieutenant of the officers' reserve corps June 1917 and has advanced through the various grades since that time.—*J.A.M.A., Apr. 25, 1942.*

AMONG THE STATES

California

From the State Institute of Technology (Caltech) comes the information that Dr. Linus Pauling and his coworkers have created antibodies *in vitro* which "some day" may be manufactured in commercial laboratories.—*From Pathfinder.*

Canada

Fifteen thousand Americans enlisted in the armed forces of Canada before the declaration of war on Germany and Japan. However, an agreement with the Canadian Government as of April 6 provides that they be informed that those who lost their citizenship on account of the enlistment may regain their *status quo ante* and enlist in the American service.

Connecticut

State Association.—At a meeting held at Hartford in February it was decided to hold sessions on meat and dairy inspection. The first of these sessions was held in March at the West Haven Packing Plant where Drs. R. L. Smith and T. J. Ahern of the BAI gave a demonstration on the inspection of beef, veal and pork, together with plant inspection and slaughtering. This part of the demonstration was conducted by Federal Inspectors A.

Packer and R. A. Moonan. The meeting then adjourned to an auditorium where meat inspection as a whole was discussed.

The purpose of these meetings is to acquaint veterinarians with that type of work in view of the possible dislocation of the veterinary service through meeting the demands of the armed forces. Great interest was shown in the effort and all were pleased with the demonstration given.

s/ Edwin Laitinen, Chairman
Veterinary Preparedness Committee.

Illinois

Plans for suppressing the spread of smallpox and diphtheria are among projects No. 1 of the state department of health. The state, says Director Gross of the State Department of Health, has not effectively controlled smallpox. It is generally neglected until epidemics break out. Smallpox vaccination was so badly neglected in the 1920's that by 1929 there was an upswing to 4,000 cases. By 1935, the number dropped to 83, but in 1938 owing to popular indifference again, although 12 states, including the large states of New York and Pennsylvania, had not a single case, there was a sharp upswing. Nowhere is public indifference to general health more strikingly shown than in the incidence of smallpox—a grave disease that has swung inversely to vaccination before the very eyes of the people for almost a century and a half.

Public Health Contests.—The Chamber of Commerce of the United States, in coöperation with the American Public Health Association, is sponsoring public health contests between cities and counties for the purpose of focusing public attention on the strength or weakness of local health services. W. S. Rankin, M.D., Duke Endowment Fund, Charlotte, N. C., is the chairman. Among the fourteen cities throughout the country listed as winners for April two are of Illinois: Evanston and La Salle.

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Illinois Health Messenger, official monthly of the State Department of Health, devoted much of the May issue to a plea for better smallpox control, since the state has a poor record on that score.

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Quick Relief.—Within 48 hours after Lacon and Alvin were struck down with a terrifying tornado March 16, 319 persons had already received their first inoculation against typhoid and 80 had been immunized against tetanus.

Iowa

Southeastern Association.—The monthly dinner meeting of the Southeastern Veterinary Medical Association was held at Mt. Pleasant, April 9, at the Brazelton hotel. Thirty-six members attended. Swine erysipelas by R. M. Hofferd of Corn States Serum Company, Cedar Rapids, and municipal meat and milk inspection by W. A. Houk of Muscatine, veterinary inspector, were the features of the program. At the March session also held in Mt. Pleasant, poultry management by P. V. Neuzil of Blairstown, and the state Procurement and Assignment Service by A. R. Menary, of Cedar Rapids, were the topics discussed. Secretary T. J. McCabe announced the May meeting as the session for the election of officers.

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Veterinarians' Exhibit at Iowa State Medical Society.—The Iowa Veterinary Medical Association presented an educational exhibit at the annual meeting of the Iowa State Medical Society in Des Moines, April 15-17. The exhibit consisted of a wax moulage of pathological specimens prepared by W. A. Cornell of the U. S. BAI, watch glass specimens forwarded by J. S. Bengston of the pathological laboratories of the BAI in Chicago and C. L. Davis of the Denver laboratory. Many of the specimens, together with a collection of parasites in test tubes, depicted diseases and parasites of animals transmissable to man. The exhibit elicited much favorable comment from the M. D.'s. The committee responsible for the exhibit was A. H. Quin, chairman; Wayne Riser, J. A. Barger and E. A. Benbrook.

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Student (AVMA) Chapter.—At the meeting of March 12 Dr. W. H. Feldman of the Mayo Foundation spoke on the subject, "Interrelationships Between the Medical and Veterinary Medical Professions." The members of the committee for the annual veterinary banquet are Frank Reimers, Perry Jensen, Brad Crundwell, Clark Stillinger and Don McCracken.

At the March 25 meeting sound films were shown on "Vitamins and Nutritional Diseases in Poultry," followed by a talk on the same subject by H. L. Wilcke, head of the poultry division. Announcement was made that the annual veterinary banquet would be held in the Memorial Union, April 22, at which time Dr. W. L. Strunk, commissioner of game and wild life in Minnesota, would speak and present pictures.

s/ Jack W. Hylton, Secretary.

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Junior AVMA Chapter Wins Award.—The Guild Service Honor, based on the best contribution to campus life, was awarded to the Junior Chapter of the American Veterinary Medical Association at Iowa State College. The award was won in a competition among eleven campus groups. The citation states that the Chapter inaugurated a student honor code of personal conduct not only in examinations but also applicable to all phases of student life, that the Chapter published the first veterinary student publication in the United States (*The Veterinary Student*), that it holds fortnightly meetings in coöperation with the Agricultural Division, addressed by

prominent figures in their respective fields, and that it inaugurated a summer athletic program and other activities of merit, outlined by the Cardinal Guild.

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Maine

State Association.—The quarterly meeting was held at the Animal Pathology Laboratory, University of Maine, Orono, April 8, 1942.

A. J. Neal, Bangor, in charge of the large animal clinic, administered 50 grains of nembutal to a 435 pound heifer, umbilical hernia operation to follow. C. M. Merrill and S. D. Merrill of S. Paris, a father and son combination, operated for an umbilical hernia, scarifying the opening and pulling it together with No. 4 catgut. Prior to the closing of the skin wound with mattress sutures, sulfanilamide powder was applied to the inner portions of the wound.

The small animal clinic was conducted by Robert W. Nichols of Fryeburg, who demonstrated the subcuticular stitch in a spay operation. C. M. and S. D. Merrill also demonstrated their way of handling hematoma and canker in cats and dogs.

A question and answer period and business meeting followed the clinic. At 6:30 the men joined the ladies for a banquet and entertainment, after which the group retired to the Witter home for a social evening.

The next meeting will be July 8, probably in the vicinity of Bar Harbor.

s/J. F. Witter, Secretary.

Maryland

Personal.—William R. Crawford (Cornell '24) professor of veterinary science at the University of Maryland, College Park, Md., has been critically ill in Walter Reed Hospital, Washington, D. C., for several months. Dr. Crawford has always been active in Scottish activities in the environs of Washington, and has played his bagpipes at many veterinary functions.

Michigan

Personal.—W. H. Erwin and his wife recently spent two weeks with their son in Houston, Tex.

Missouri

W. L. Boyd ('09), chief of the Veterinary Division, University of Minnesota, University Farm, St. Paul, Minn., was chosen president of the K.C.V.C. Alumni Association, vice A. T. Kinsley, deceased, Lt. Col. Raymond ('15), U. S. Army, Ft. Reno, Okla., was named vice-president, and Chas. D. Folse ('10), Kansas City, Kans., associate editor and acting secretary. The *K.C.V.C Alumni Quarterly* for March 1942, under the headline "We Are At War," urges the members of this old alumni society to respond promptly in filling out the form and questionnaire on the Procurement and Assignment Service. Quoting: "The status of the veterinary profession during the war emergency is presenting some problems of serious nature. At a time when ample protection of food sources is most important, the nation finds itself alarmingly short of veterinary personnel. To spread the available men without loss is the problem to be solved first. The P and A Service through the American Veterinary Medical Association is collecting and tabulating data now to be used in assigning the veterinary personnel as it is needed. As a part of the preliminary survey, a questionnaire is being sent to each veterinarian in the nation. It is necessary that each question be answered in full and with complete detail. The individual veterinarian will thereby be sure he is placed in the position for which he is best suited and will get the maximum service with least loss of effort. It is likely that those engaged in practice involving food-producing animals will be left where they are and that most of the regulatory personnel will not be disturbed, but others may be required to enter the army or be assigned to professional civilian service."

The *Quarterly* then goes on to urge its readers to fall in line lest they interrupt the government's survey of the nation's professional and specialized personnel.

New York

New Editor of Cornell Veterinarian.—The April issue of *The Cornell Veterinarian* announced the accession of P. P. Levine to the position of editor, vice A. G. Danks, resigned on account of the pressure of other duties. Dr. Levine, who in a few years became well known to readers of veterinary literature and scientific literature related thereto, assumes a responsibility for which he is well qualified; a responsibility in fact, since the journal he has been appointed to direct has won through merit a high place among the world's veterinary publications. The new editor came to Cornell with a bachelor of science degree obtained at the College of the City of New York in 1927. He received his M.S., and D.V.M., in 1932. Majoring in bacteriology and parasitology he earned his Ph.D. in 1937. The new editor's position in the New York State Veterinary College is that of associate professor in pathology and bacteriology.

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Society of Mammalologists—At the twenty-fourth annual meeting of the American Society of Mammalologists held in New York City in March, undue exploitation of permanent resources to furnish food and other material was opposed. Particular stress was put on the extermination of deer in the Seminole Reservation in Florida in order to eradicate tick fever in cattle. Public opinion and the

rights of the Indians, seemed to be regarded more important than the objective of the veterinary service. Even among scientists, when zoölatry steps in philanthropy retreats.

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Personal.—L. J. Tompkins, D.V.M., (Corn. '12), Packinack, N. J., vice Hugh E. Potts, Ph.D., resigned, has been appointed sanitarian and veterinarian for the New York County Medical Society, New York City and the Milk

L. J. Tompkins

Commission of the Medical Society, County of Kings, Brooklyn. Dr. Tompkins is a past president of the Metropolitan Certified Milk Producers Association, and has long been active in the certified milk circle of the eastern seaboard.

Ohio

West-Central Association.—Annual ladies' night and dinner of the West-Central Ohio Veterinary Medical Association was held at Beaverdam in February. The attendance was 35. Four counties were represented. Paul Greer of Lima gave an illustrated lecture on Havana, Cuba. C. W. Fogel was named to represent the Association on the state preparedness committee.

The April meeting was held at the home of Dr. and Mrs. R. D. Stewart in Wren. Six counties were represented. The principal speaker was Martin W. Feiberg of Van Wert.

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Southwestern Association.—The Southwestern Tricounty Veterinary-Medical Association drew an attendance of 60 members and their wives at a meeting held in Hamilton, April 3.

Oklahoma

Personal.—Lieut. H. J. Harkavy (K.S.C. '38) onetime practitioner at Bartleville, but not in the Veterinary Corps, was married March 18 in Chicago, to Miss Harriet Louis Gerber, graduate in bacteriology and chemistry, University of Chicago. Their temporary home is El Paso, Texas.

Rhode Island

Veterinary Practice Act Improved.—The Veterinary Practice Act passed in 1906 was a political compromise that protected quackery. Since that time the state association has spent considerable time and money to correct that part of the law known as Section 8, Chapter 205 of the General Laws which, in effect, nullified the Act so far as protecting the livestock industry against the incompetence of untrained practitioners is concerned. During the past 16 years every attempt to have the joker stricken from the Act failed. Before the last legislature I introduced and succeeded in having the objectionable section struck out. The amendment gives our profession a practice act that will protect practitioners from encroachment by persons desiring to enter the field of veterinary medicine without having graduated from a recognized veterinary college. It has required a long time and much effort to accomplish this, but "the thing was done," through clean, intelligent arguments before the first constructive legislature we have had since 1909. In addition to the practitioners, the measure was supported by the R.I.S.P.C.A. and the Purebred Guernsey Association, against considerable opposition.

Our success was achieved without legal aid. The members of the legislature seized our arguments and acted favorably upon them.

s/J. S. Barber, Resident Secretary.

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Veterinary Practice Act.—According to a report in *The Journal of the American Medical Association*, April 11, 1942, the bill identified as H.833, proposed to repeal the law relating to the licensing and regulation of veterinary medicine, surgery and dentistry.

Texas

Houston Association.—The last meeting of the season of the Houston Veterinary Medical Association was held May 7, 1942. It was a particularly well attended and interesting meeting. Following are the program and speakers:

Ludwik Anigstein, University of Texas.—Weil's Disease in Man and Animals. Dr. Anigstein was formerly employed by the British and Malayan governments and is now Associate in Preventive Medicine at the University.

James K. Northway, King Ranch veterinarian, Kingsville, Tex., lectured on large animal

surgery, demonstrating his heifer spaying technic with still photographs and colored movies.

The officers elected for the coming year are: J. W. Williamson, president; D. C. Frederick, vice-president; Fred Molt, 2nd vice-president; Archie Stallings, secretary-treasurer.

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Personals.—John P. Delaplane, D.V.M. (O.S.U. '29) has resigned from his position as associate professor of poultry husbandry at Rhode Island State College, effective July 1, to join the staff of the Texas Agricultural Experiment Station.

Frank Hecker of Houston is doing equine research as evidenced by his close study of the daily racing form.

F. N. Jenkins is in Hot Springs, Ark., taking the baths. It is purely coincidental that the racing season is on in that city.

Utah

Outbreaks of equine encephalomyelitis are reported as of May 12 to have occurred in southern Idaho and Box Elder county (Utah). The report comes from the headquarters of the Ninth Corps Area at Fort Douglas in the form of a newspaper clipping dated at Brigham City, where (and we quote): "Horsemen whose animals are afflicted with the disease are requested to get in touch with the county agent as a plan has been worked out, in coöperation with the State Department of Agriculture to obtain the necessary vaccine."

Wisconsin

Among fourteen cities named as winners in the National Health Conservation Contest conducted by the Chamber of Commerce of the United States and the American Public Health Association, three were of Wisconsin: Milwaukee, Racine and Madison.

State Board Examinations

District of Columbia—The Board of Examiners in Veterinary Medicine of the District of Columbia will hold an examination for applicants for license to practice in the District on June 10, 1942. For further information write I. M. Cashell, secretary-treasurer, 2818 L Street, N. W., Washington, D. C.

Florida—The Florida Board of Veterinary Examiners will hold examinations for applicants for license to practice veterinary medicine on June 29 and 30, 1942, at Jacksonville, Fla. For details write H. C. Nichols, secretary, Ocala, Fla.

Illinois—The Department of Registration and Education announces an examination of candidates for license to practice veterinary medicane on July 27 and 28, 1942. The examination will be held at the Department's Chicago headquarters. Applications should be filed 20 days before that date. For details and application blanks write Superintendent of Registration, Department of Registration and Education, Springfield, Ill., or to L. A. Merillat, president.

Indiana—The Indiana Veterinary Examining Board will hold examinations in Rooms 205-206, State House, Indianapolis, July 14. Inquiries relative thereto should be addressed to J. L. Axby, secretary, at that address.

Iowa—The Iowa Veterinary Medical Examining Board will hold examinations for the licensing of veterinarians June 8-9, 1942. Applicants are asked to be in the office of the Division of Animal Industry not later than 8 o'clock on the morning of June 8. For further information write Dr. C. C. Franks, chief, Division of Animal Industry, State Capitol Bldg., Des Moines, Iowa.

Oklahoma—The Board of Veterinary Medical Examiners will hold examinations for the licensing of veterinarians on June 9 and 10, 1942. The examinations will begin at 8:30 A.M., and will be held in the State Capitol Bldg., Oklahoma City, Okla.

Virginia—The Virginia State Board of Veterinary Examiners will hold their annual examinations for the licensing of veterinarians on July 9, 1942. The examinations begin at 9:00 A.M., and will be held in the Stonewall Jackson Hotel, Staunton, Va.

Wisconsin—The Wisconsin State Board of Veterinary Examiners will hold an examination for license to practice veterinary medicine at the state capitol building in Madison, June 18 and 19. For details apply to V. S. Larson, Division of Livestock Sanitation, Madison, Wis.

Federal Aid Proposed to Help Students Pay College Expenses Under Accelerated Curricula

Under the system of accelerated curriculums adopted by many universities and colleges to speed up the training of physicians, veterinarians, dentists, engineers and other technical graduates, there will be no opportunity for vacation employment which many students have relied upon in the past to help finance their education. This development has caused concern on the part of both faculties and students and has been one of the objections and practical obstacles to the program.

As a result, a proposal has been made and discussed by several federal agencies that would provide an appropriation to assist

students with scholarship expenses. It is understood that the proposal has the approval of the Federal Security Administration and is now before the Bureau of the Budget, but no specific authorizing legislation has yet been introduced into Congress.

Births

To Dr. and Mrs. J. C. Schwabland, Blissfield, Mich., a daughter, March 15, 1942.

To Dr. and Mrs. E. H. Gloses, Gaylord, Minn., a daughter, February 12, 1942.

To Dr. and Mrs. Raphael Meisels, New York, N. Y., a daughter, March 28, 1942.

COMING MEETINGS

Kentucky Veterinary Medical Association. Brown Hotel, Louisville, Ky. June 7-8, 1942. F. H. Riester, secretary, Buechel, Ky.

Oklahoma Veterinary Medical Association. Fort Reno, Okla. June 8, 1942. F. Y. S. Moore, secretary, Box 485, McAlester, Okla.

Mississippi Valley Veterinary Medical Association. (Picnic). Galesburg, Ill. June 18, 1942. L. A. Gray, secretary, Bushnell, Ill.

Michigan Veterinary Medical Association. Mich. State College, E. Lansing, Mich. June 23-25, 1942. E. C. W. Schubel, secretary, 89 E. Chicago St., Quincy, Mich.

North Carolina State Veterinary Medical Association. Shelby, N. Car. June 25-26, 1942. J. H. Brown, secretary, Tarboro, N. Car.

National Veterinary Practitioner's Association. Kansas City, Mo. June 29-July 1, 1942. J. C. Flynn, secretary, 3026 Main St., Kansas City, Mo.

Midwestern Veterinary Conference. Kansas City, Mo. June 29, 30 and July 1, 1942. Glen L. Dunlap, 800 Woodswether road, Kansas City, secretary-treasurer; J. L. Wells, Blue Springs, Mo., general chairman; S. J. Schilling, Kansas City, chairman, Publicity Committee.

Idaho State Veterinary Medical Association. Nampa, Idaho. June 30-July 1, 1942. E. T. Powell, secretary, Boise, Idaho.

Northwest Veterinary Medical Association. Seattle, Wash. July 6-8, 1942. H. W. Marsden, 206 Yale Ave., N. Seattle, Wash., chairman, Committee on Local Arrangements.

Virginia State Veterinary Medical Association. Hotel Stonewall Jackson, Staunton, Va. July 9-10, 1942. Banquet held on Thursday evening, July 9. E. P. Johnson, secretary, Blacksburg, Va.

Montana Veterinary Medical Association. Great Falls, Mont. July 10-11, 1942. E. A. Tunnicliff, secretary, Montana Veterinary Research Laboratory, Bozeman, Mont.

American Veterinary Medical Association, Chicago, Ill. August 17-20, 1942. J. G. Hardenbergh, executive secretary, 600 S. Michigan Ave., Chicago, Ill.

DEATHS

J. L. Ackerson (Gr. Rap. '04), 60 years old, Milan, Mich., died April 26, 1942. He had practiced in Milan for 30 years and was a Knight Templar. He joined the AVMA in 1918.

Salmar P. Bolstad (K.C.V.C. '12), Denver, Colo., died April 24, 1942. He was born in Dawson, Minn., in 1887. Dr. Bolstad had been with the U. S. BAI since September, 1940.

William R. Carr (Ont. '90), Los Angeles, Calif., died April 24, 1942. Dr. Carr was born in Westfield, Ont., Nov. 30, 1886. He was known and esteemed throughout California, where he had been a practitioner in the large animal field since 1909. He was the official veterinarian for the Santa Anita and Hollywood Park racetracks. He joined the AVMA in 1916.

G. H. Chandler (C.V.C. '95), Upper Sandusky, Ohio, died Feb. 12, 1942. He joined the AVMA in 1912.

D. J. Frame (Ohio '09), Akron, Ohio, died April 20, 1942. He had been a member of the Ohio State Veterinary Medical Association since 1914.

C. E. Frost (Gr. Rap. '10), 55 years old, a practitioner in Stryker, Ohio for 37 years, died Feb. 5, 1942. He was born at Bryan, Ohio. Dr. Frost served for 20 years as Springfield County trustee. He had been a member of the Association since 1916.

Oscar A. Hoffman (S.F.V.C. '15), 58 years old, Walnut Grove, Calif., died April 9, 1942. Dr. Hoffman had practiced in Walnut Grove for the last 27 years. He joined the AVMA in 1938.

Burnett C. Johnson (Geo. Wash. '16), 49 years old, S. Saint Joseph, Mo., died April 13, 1942. He was associated with the U.S. BAI as inspector in charge. He joined the AVMA in 1928.

Hugh L. McCormick (Ind. '15), 53 years old, practitioner in Pendleton, Ind., died March 20, 1942. He joined the AVMA in 1926.

R. N. Rivers (U.P. '01), practitioner at Lansdale, Pa., died March 13, 1942. He practiced for many years in North Wales, Pa., as an associate of Dr. E. M. Michener. Dr. Rivers was a member of the AVMA for many years.

C. H. York (K.C. '11), Holmesville, Ohio died April 21, 1942. He had been a member of the Ohio State Veterinary Medical Association since 1919.

VETERINARY PREPAREDNESS

Occupational Deferments of Doctors, Dentists and Veterinarians

[REPRINTED FROM "MEDICINE AND THE WAR" SECTION OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, MAY 16, 1942]

The following memorandum (I-420) was sent to all state directors by Lewis B. Hershey, director of the Selective Service System, Washington, D. C. This amendment involves a change from Corps Area Committees of Procurement and Assignment Service to separate state chairmen for medical doctors, dentists and doctors of veterinary medicine and also a change with respect to the consideration of dependency in classifying such registrants.

National Headquarters

SELECTIVE SERVICE SYSTEM

21st Street and C Street N. W.
Washington, D. C.

January 28, 1942
Amended 4/28/42

Memorandum to all State Directors (I-363)
Local Board Release (89)

Subject: Occupational Deferments of Medical Doctors, Dentists and Doctors of Veterinary Medicine (III).

1. Information previously distributed by this headquarters clearly indicates an overall shortage of medical doctors, dentists and doctors of veterinary medicine in the nation. Since war was declared, the shortage of these professional men has become acute. It is now manifest that every qualified doctor, dentist and veterinarian must serve where he can render the greatest professional service to the nation.

2. In order to accomplish this purpose, the President, by executive order, has formed the Procurement and Assignment Service. This service was formed primarily for the purpose of gathering and making available information with respect to the supply of qualified practitioners in the fields of medicine, dentistry and veterinary medicine, with a view of securing the most effective allocation of medical manpower as indicated by the requirements of the armed forces, civilian needs and industrial medicine.

3. To work with the headquarters of the Procurement and Assignment Service there has been appointed for each state and the District of Columbia a state chairman for medical doctors, a state chairman for dentists and a state chairman for doctors of veterinary medicine. These state chairmen will secure information concerning their respective professions and will give advice regarding the allocation of medical manpower.

4. When considering the classification of any registrant who is a qualified medical doctor, dentist or doctor of veterinary medicine, the director of Selective Service desires that local boards, through the state director, shall consult with the respective state chairman of the Procurement and Assignment Service.

5. In considering the classification of a registrant who is a qualified medical doctor, dentist or doctor of veterinary medicine, the local board may, if it finds such registrant should not be deferred for reasons other than dependency, take into consideration the pay and allowances which such registrant would receive in the event he is commissioned in the armed forces. In practically all instances the pay and allowances of such registrant, if he were commissioned as an officer, would be sufficient to eliminate the question of dependency.

6. For the convenience of the state director and the local boards, the names and addresses of the respective state chairmen of the Procurement and Assignment Service are listed herewith:

Medical	*Dental*	*Veterinary Medical*
ALABAMA Dr. B. F. Austin, 519 Dexter Avenue, Montgomery	Dr. C. B. Bray, Amer. Cast Iron Pipe Co., Birmingham	Dr. R. S. Sugg, School of Vet. Medicine, Ala. Polytech. Inst., Auburn
ARIZONA Dr. Charles S. Smith, Nogales	Dr. W. A. Baker, Professional Bldg., Phoenix	Dr. T. B. Jones, 105 Capitol Bldg., Phoenix
ARKANSAS Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith	Dr. I. M. Sternberg, Merchants Bank Bldg., Fort Smith	Dr. Joe S. Campbell, Route 4, Little Rock
CALIFORNIA Dr. Harold A. Fletcher, 490 Post St., San Francisco	*Southern* Dr. Kenneth Ruedy, 3780 Wilshire Blvd., Los Angeles *Northern* Dr. J. W. Leggett, 490 Post St., San Francisco	Dr. Joseph M. Arburua, 26 Fell St., San Francisco

Medical	*Dental*	*Veterinary Medical*
COLORADO Dr. John Amesse, 624 Metropolitan Bldg., Denver	Dr. E. M. Silverberg, 809 Republic Bldg., Denver	Dr. Floyd Cross, Colorado State College, Fort Collins
CONNECTICUT Dr. Creighton Barker, 258 Church St., New Haven	Dr. Louis R. Siegal, 750 Main St., Hartford	Dr. Edwin Laitinen, 993 North Main St., West Hartford
DELAWARE Dr. William H. Speer, 917 Washington St., Wilmington	Dr. William Stewart, Medical Arts Bldg., Wilmington	Dr. Harry McDaniel, Jr., State Board of Agr., Dover
DISTRICT OF COLUMBIA Dr. F. X. McGovern, 1835 Eye St. N. W., Washington, D. C.	Dr. George Albert Smith, 1835 Eye St. N. W., Washington, D. C.	Dr. A. E. Wight, Bureau of Animal Industry, Washington, D. C.
FLORIDA Dr. Edward Jelks, Box 1018, Jacksonville	Dr. E. C. Lunsford, 2742 Biscayne Blvd., Miami	Dr. J. L. Ruble, 1600 North Orange Av., Orlando
GEORGIA Dr. Edgar H. Greene, 875 W. Peachtree St. N. E., Atlanta	Dr. R. H. Murphy, 920 Persons Bldg., Macon	Dr. J. M. Sutton, Sylvester
IDAHO Dr. F. M. Cole, Caldwell	Dr. J. E. Bennett, Idaho Falls	Dr. Arthur P. Schneider, Director, Bureau of Animal Industy, Boise
ILLINOIS Dr. Harold M. Camp, 2245 South Main St., Monmouth	Dr. William I. McNeil, 59 East Madison St., Chicago	Dr. A. E. Bott, Corn Belt Laboratories, East St. Louis
INDIANA Dr. Charles R. Bird, 23 E. Ohio St., Indianapolis	Dr. H. T. Berkey, Wayne Pharmacal Bldg., Fort Wayne	Dr. Charles C. Dobson, New Augusta
IOWA Dr. T. F. Suchomel, 305 2d St., Cedar Rapids	Dr. John Voss, Voss Bldg., Iowa City	Dr. A. R. Menary, 1721 Blake Blvd., Cedar Rapids
KANSAS Dr. F. L. Loveland, 109 W. 9th St., Topeka	Dr. John W. Richmond, Huron Bldg., Kansas City	Dr. R. R. Dykstra, Kansas State College, Manhattan
KENTUCKY Dr. Arthur T. McCormack, 620 S. 3d St., Louisville	Dr. E. C. Hume, 746 Francis Bldg., Louisville	Dr. Arthur J. Kay, 517 Murray St., Frankfort
LOUISIANA Dr. C. Grenes Cole, 921 Canal St., New Orleans	Dr. Larry Dupuy, 837 Maison Blanche Bldg., New Orleans	Dr. E. P. Flower, Box 24, Baton Rouge
MAINE Dr. John G. Towne, 135 Main St., Waterville	Dr. Giles C. Grant, 655 Congress St., Portland	Dr. P. R. Baird, 52 Pleasant St., Waterville
MARYLAND Dr. Charles W. Maxson, 1211 Cathedral St., Baltimore	Dr. T. J. Bland, Medical Arts Bldg., Baltimore	Dr. A. L. Brueckner, College Park
MASSACHUSETTS Dr. Reginald Fitz, 319 Longwood Ave., Boston	Dr. Andrew J. Rafferty, 390 Main St., Worcester	Dr. Harrie W. Peirce, 100 Nashua St., Boston
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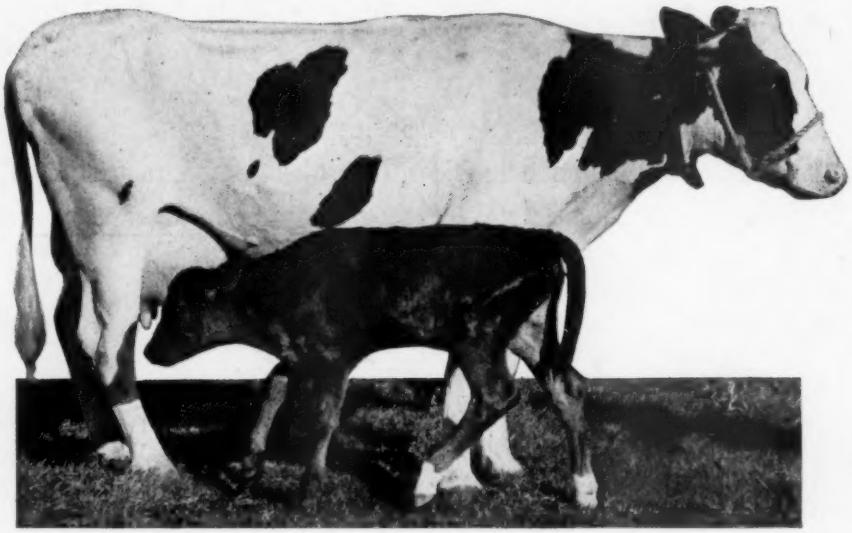

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